1990-91 School Year

# Diploma Examinations Program Annual Report

Students First!

Student Evaluation

Alberta EDUCATION

AE-CUR
DIP

## 1990-91 School Year

# Diploma Examinations Program
# Annual Report

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# MESSAGE FROM THE DIRECTOR

Many teachers have assisted in exam development, field testing, marking, and in the actual administration of the diploma exams. As well, high school principals, superintendents, and other school personnel have helped make the Diploma Examinations Program effective. I appreciate the tremendous commitment they have shown, and I want to thank them for their co-operation and assistance.

In this year's report, we continue the practice begun last year of combining information for the entire school year. Student performance on the January, June, and August exam sittings is reflected in this report. You will be able to see how students performed in various diploma exam courses over the past three years and to compare their marks on the diploma exams with the marks they earned for their classroom work. You will also be able to compare the achievement of female students and male students.

Our data show that in most courses, students maintained their good performance this year. In Mathematics 30, a large number of students performed poorly, and this is a major concern. There is evidence, however, that some aspects of students' writing on the Social Studies 30 and English 30 exams have improved.

In all the diploma exam subjects except for English 33 and Physics 30, the proportion of females writing diploma exams exceeds the proportion of males. The proportion of female students is relatively high in biology but remains low in physics. While the school-awarded marks of female students are similar to or higher than those of male students, the achievement of females on most diploma exams is below that of males.

A highlight of this year's report is the information about the patterns students follow to complete high school. This information was gathered from a special study; the students who participated were those whose first year of Grade 12 was 1987-88, 1988-89, or 1989-90. The study showed that approximately 69 per cent of the students who wrote diploma exams finished high school within three years without rewriting a diploma exam. Approximately 23 per cent of these students took more than three years, and a similar proportion rewrote one or more exam(s). The study also confirmed that students who repeat a course before rewriting a diploma exam are most likely to improve their marks, especially in sciences.

I welcome your comments and questions about this report or about specific aspects of the Diploma Examinations Program. Please feel free to call or write to me, or to contact any of the Student Evaluation staff members mentioned in various sections of the report. We remain committed to communicating the level of achievement of our graduating students clearly and in ways that will encourage improvements in education.

Horvath

Frank G. Horvath, Director

# SECTION 1
# GRADE 12 DIPLOMA EXAMINATIONS PROGRAM

The Grade 12 Diploma Examinations Program, established in 1984, has three main purposes:

- to **certify** the level of individual student achievement in selected Grade 12 courses
- to ensure that province-wide **standards** of achievement are maintained
- to **report** individual and group results

The examination development process, described in Appendix A, ensures that this form of assessment provides valid and reliable results.

Eight Grade 12 courses have diploma examinations and five of these* are available in French translation:

- English 30
- English 33
- Social Studies 30*
- Français 30
- Mathematics 30*
- Biology 30*
- Chemistry 30*
- Physics 30*

Examinations are administered in January, June, and August of each school year.

## CERTIFICATION

Diploma examinations assess only those objectives in the *Programs of Studies* that can be measured in a limited time using paper and pencil tests. The mark awarded by the school, reflecting also the measurement of other important curricular objectives, is an essential component. A student's final mark, therefore, is a fifty-fifty "blend" of the diploma examination mark and the school-awarded mark (except for students with mature status; see Section 4). For example, a diploma examination mark of 57% combined with a school-awarded mark of 45% would produce a final blended mark of 51%, resulting in credit being awarded for that course.

## STANDARDS

The *Program of Studies* for each diploma examination course outlines what students are expected to know and to be able to do in order to pass. Information bulletins published at the beginning of the school year provide details about "how well" students are expected to do, i.e., the bulletins outline the performance standards for each diploma examination course. Students who achieve the *acceptable standard* of performance receive a final mark of 50% or higher. Students who achieve the *standard of excellence* receive a final mark of 80% or higher.

## REPORTING

The results achieved by students in the Diploma Examinations Program are aggregated at the school, jurisdiction, and provincial levels and are presented in four reports. Their purpose is to help school administrators and teachers evaluate the effectiveness of their educational programs. Guidelines for interpreting and using these reports are given in Appendix B.

**The reports should not be used as the basis for evaluating teacher performance or for comparing performance between schools or jurisdictions.**

*Distribution of Student Marks in Diploma Examination Courses* is a three-page report distributed to educators in schools, jurisdictions, and other educational institutions approximately three weeks after the January and June examinations are written and is available to the public upon request. The reports issued in 1991 are reproduced in Appendix C and Appendix D as "Student Marks and Examiners' Reports."

*School and Jurisdiction Reports* for each diploma examination course are distributed to educators, school administrators, and school boards after the January and June administrations. These reports provide results at the question and sub-test level for each school and jurisdiction. This information is particularly useful in assessing the strengths and weaknesses of local programs.

*Examiners' Reports* for each course are distributed at the same time as the school and jurisdiction reports, and are particularly useful for teachers. Results are provided in relation to course expectations as reflected by the examination blueprint and information bulletins. The January and June 1991 *Examiners' Reports* are included in Appendix C and Appendix D.

Finally, this *Diploma Examinations Program Annual Report* provides province-wide results for the entire school year; that is, for the January, June, and August examinations combined. Section 2 summarizes the results by subject. Section 3 provides results by gender. Section 4 focuses on results by population subgroups. Section 5 describes some of the ways students progress through the diploma examinations program. Achievement over time is reported in Section 6, and Section 7 provides examiners' summary statements for all three examination administrations.

Most of the statistics in this report are based only on the results of students who wrote diploma examinations during the 1990-91 school year and had corresponding school marks. (The number of students writing examinations and the population subgroups information are exceptions.) If a student wrote more than one examination in the same course, only the highest score was used.

This is the first year that the results for students from the North West Territories are not included with Alberta students' results. Therefore, statistics in this report for previous years' achievement may not be the same as reported in the past.

A few students wrote French translations of the examinations. Because the number of students was very small, data are not reliable.

Further information about the Grade 12 Diploma Examinations Program is available in the *General Information Bulletin,* in the examination information bulletins for each subject, and in the "Information for Students" brochure—all distributed at the beginning of each school year.

If you have any comments on the usefulness of this annual report, please complete and send in the questionnaire at the end of this document or contact Mr. Michael Robinson, Assistant Director, at 427-2948.

# SECTION 2
# SUMMARY OF RESULTS

This section provides the overall results and describes certain broad characteristics of the student population that wrote the diploma examinations.

The following questions will be answered:

- What percentage of students attained the acceptable standard or the standard of excellence according to criteria set by Alberta Education?
- How many students wrote each diploma examination and how do these numbers compare with the previous two years?
- What was the average number of different diploma examinations written by each student in each course during the 1990-91 school year?
- What was the distribution of letter grades A, B, C, and F for each diploma examination course and how does this distribution compare with previous years?
- For each diploma examination course, what is the correlation between examination marks and school-awarded marks?

---

**What percentage of students attained the acceptable standard or the standard of excellence according to criteria set by Alberta Education?**

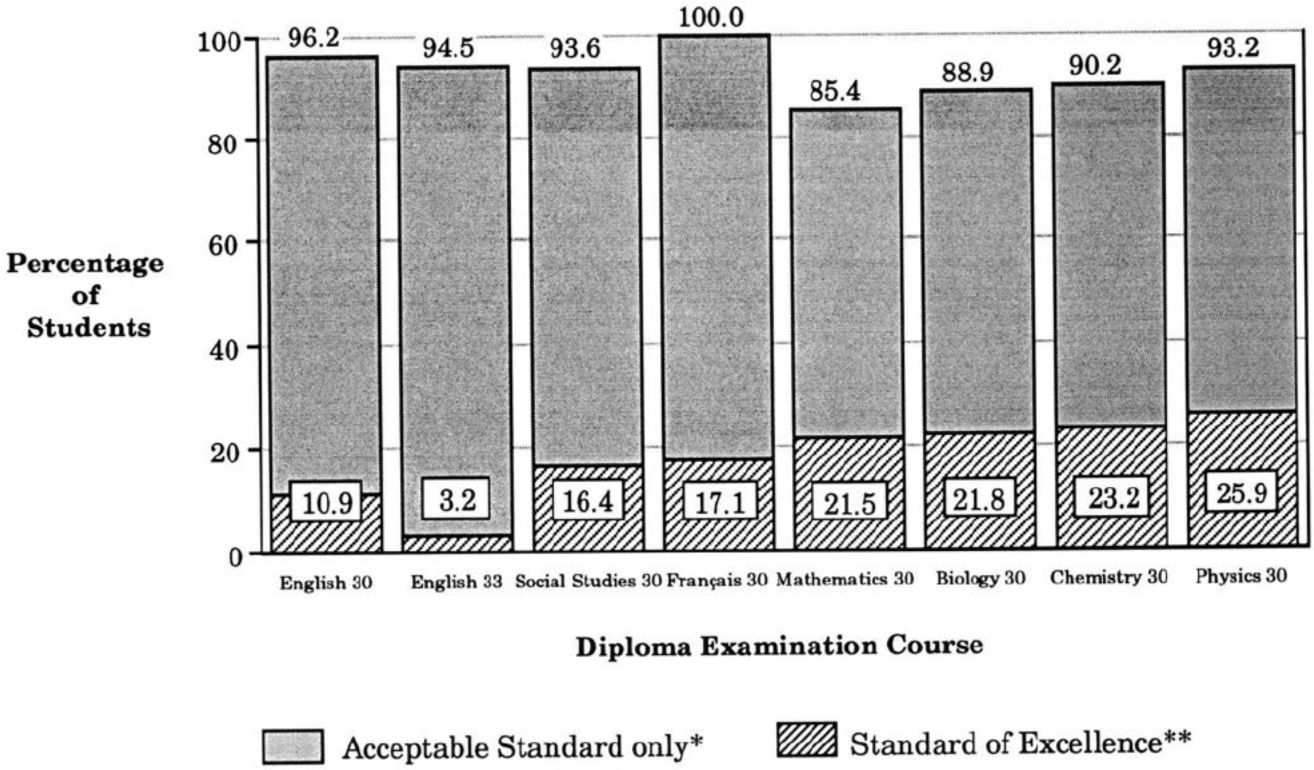
During the 1990-91 school year, blended marks showed that over 85% of students achieved the acceptable standard in each course area. In six courses (English 30, English 33, Social Studies 30, Français 30, Chemistry 30, and Physics 30), more than 90% of students achieved the acceptable standard. The lowest percentage of students achieving the acceptable standard was in Mathematics 30.

Generally, a high percentage of students also achieved the standard of excellence; for example, 25.9% of Physics 30 students achieved this standard. However, only 3.2% of English 33 students achieved the standard of excellence.

In Alberta, courses are selected by students according to their own needs, aspirations, and expectations. This may account for much of the differential achievement between courses. For this reason, expectations of the percentage of students who achieve the acceptable standard or the standard of excellence are best interpreted within the context of local policies and conditions.

Figure 2-1 shows the number of students achieving the acceptable standard and the standard of excellence. The "blended mark" is made up of 50% of the school-awarded mark and 50% of the diploma examination mark.

**Figure 2-1**
**Percentage of Students Achieving Acceptable Standard and Standard of Excellence (Blended Mark)**
**1990-91 School Year**

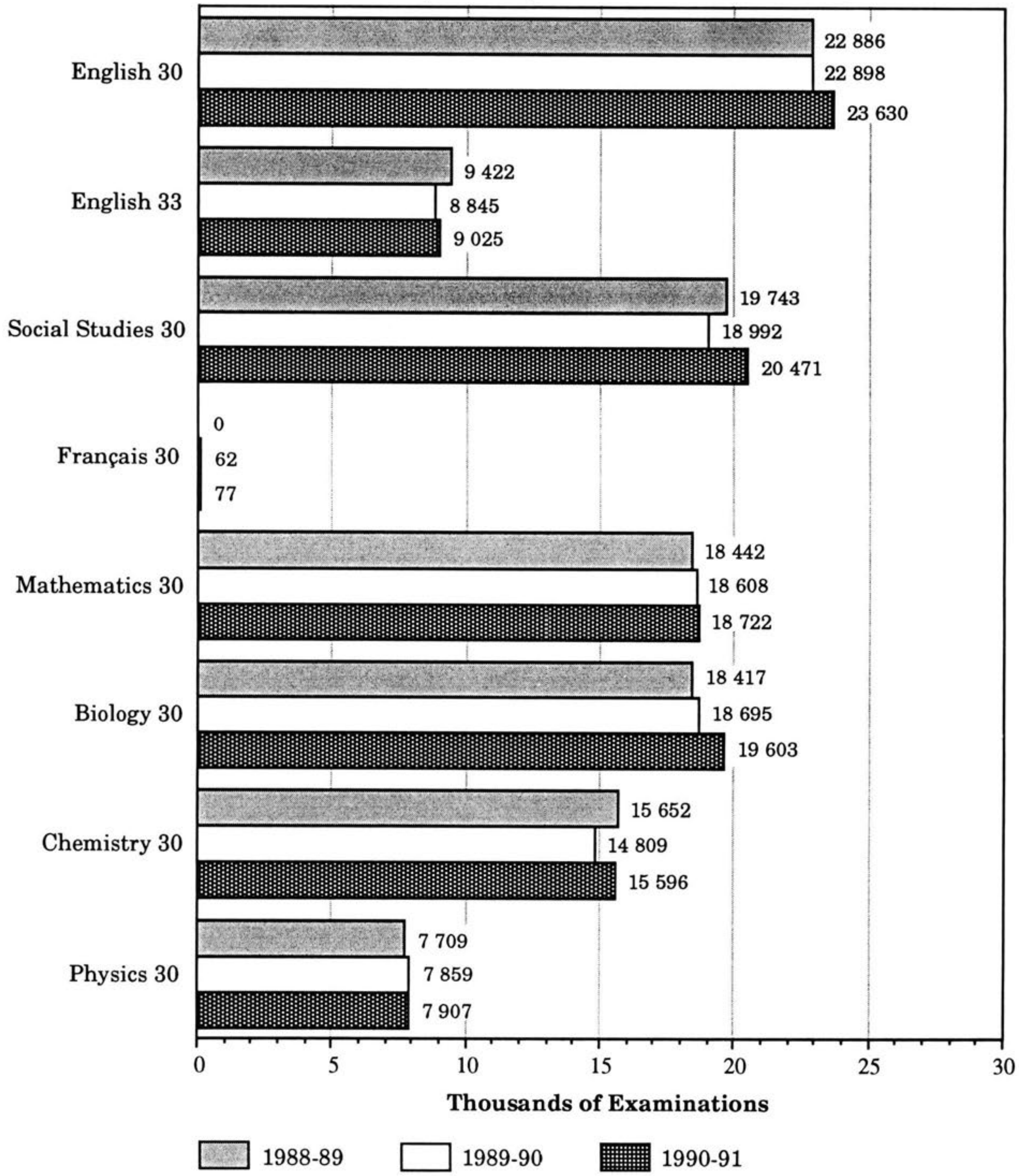


* The acceptable standard is 50% or higher.
** The standard of excellence is 80% to 100%.

**How many students wrote each diploma examination and how do these numbers compare with the previous two years?**

The number of students writing English 30 and Biology 30 increased in 1991 compared with the previous two years. The number writing English 33, Social Studies 30, and Chemistry 30 declined between 1989 and 1990 but increased in 1991. The number of students writing Mathematics 30 remained relatively unchanged only because approximately 800 students took the pilot course and were exempted from writing the Mathematics 30 examinations in 1990-91. The number of students writing Physics 30 remained relatively unchanged.

## Figure 2-2
## Number of Students Writing Diploma Examinations in Each Course 1988-89, 1989-90, and 1990-91 School Years

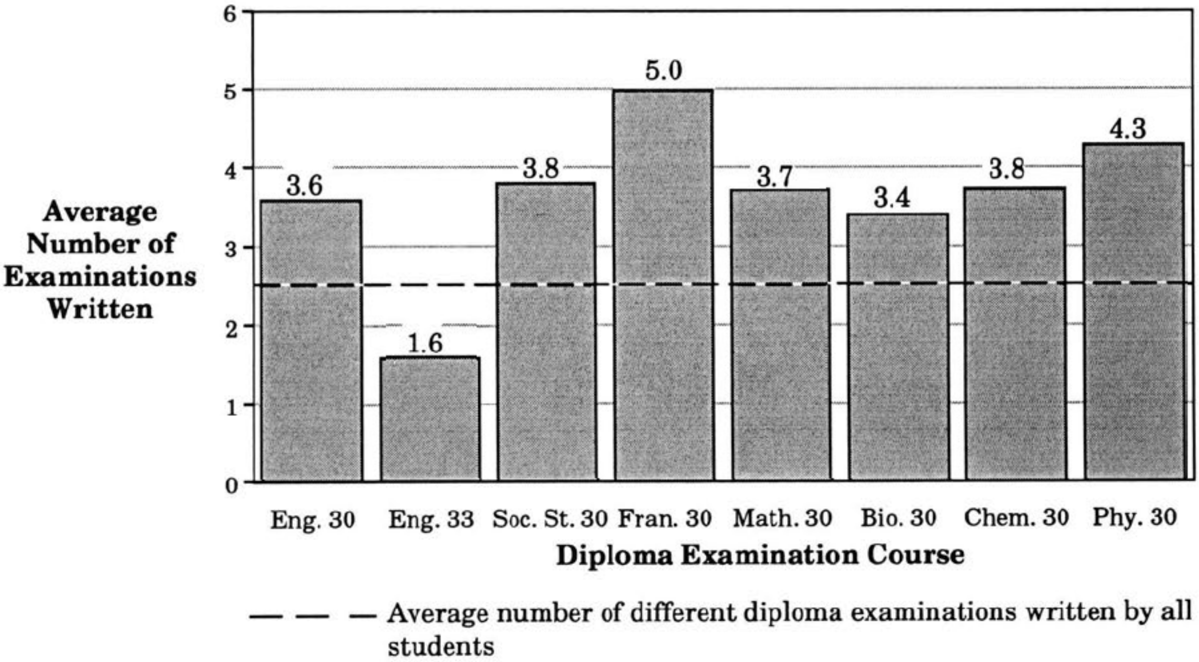


In Figure 2-2, all students who wrote more than one diploma examination in a course during a single year are counted only once. Students who wrote examinations in the same course in different years are counted once in each year that they wrote. Students from the Northwest Territories are not included in these counts. This table does include students who were not given a school mark.

**What was the average number of different diploma examinations written by each student in each course during the 1990-91 school year?**

As shown in Figure 2-3, the average number of different diploma examinations written by students writing the English 30 examination during the 1990-91 school year is approximately 3.6, and the average for students writing the English 33 examination is 1.6. Clearly, students writing the English 33 diploma examination tend to write fewer diploma examinations than do students writing English 30. Note especially that students writing the Français 30 examination average five different diploma examinations per student.

**Figure 2-3**
**Average Number of Different Diploma Examinations Written by Students in Each Course**
**1990-91 School Year**



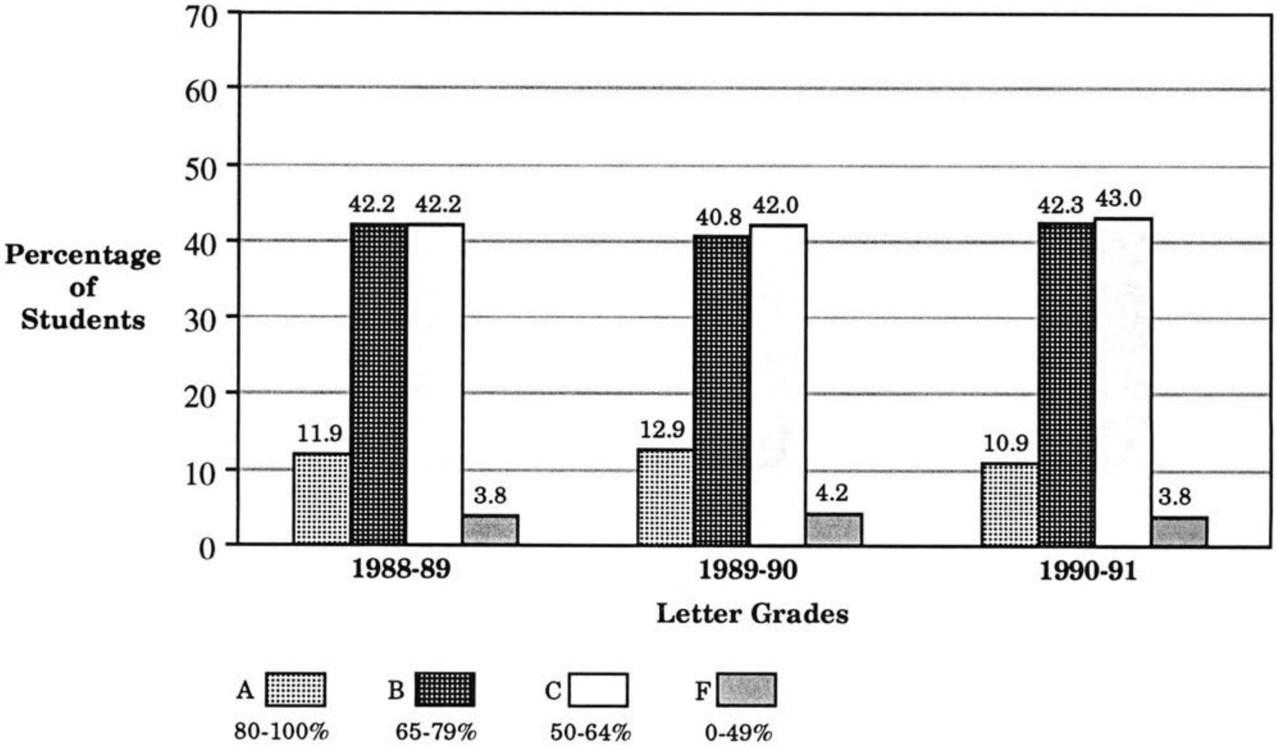
**What was the distribution of letter grades A, B, C, and F for each diploma examination course and how does this distribution compare with previous years?**

The distribution of letter grades for each course is shown in figures 2-4 to 2-19.

There are two graphs for each course. The first shows the distribution of letter grades for final blended marks over the last three years. In Social Studies 30, for example, note that the proportion of As has increased over time, and in Mathematics 30 the proportion of Fs has increased.

The second of the two graphs shows for the 1990-91 school year the distribution of letter grades for the school-awarded mark, the diploma examination mark, and the final blended mark. In the 1990-91 school year, for example, the number of Fs awarded to English 33 students for the final blended mark is much lower than the number of Fs awarded for either the school-awarded mark or the diploma examination mark. One reason for this is that no blended marks of 48% or 49% are awarded. If the average of the school-awarded mark and the diploma examination mark is 48% or 49%, the student is automatically given 50% as a final blended mark.

## Figure 2-4
## English 30 Letter Grades for Final Blended Mark
## Three School Years



## Figure 2-5
## English 30 Letter Grades for School-Awarded Mark, Diploma Examination Mark, and Final Blended Mark
## 1990-91 School Year

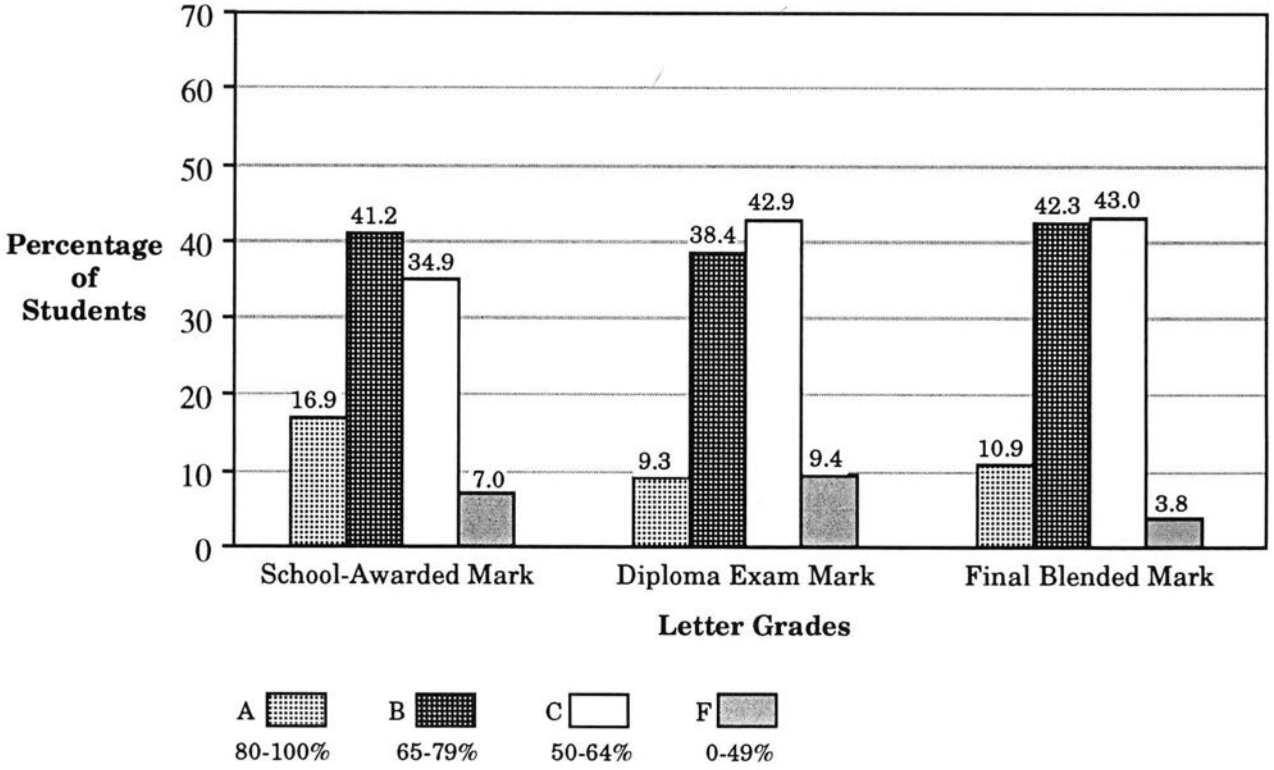


**Figure 2-6**
**English 33 Letter Grades for Final Blended Mark**
**Three School Years**

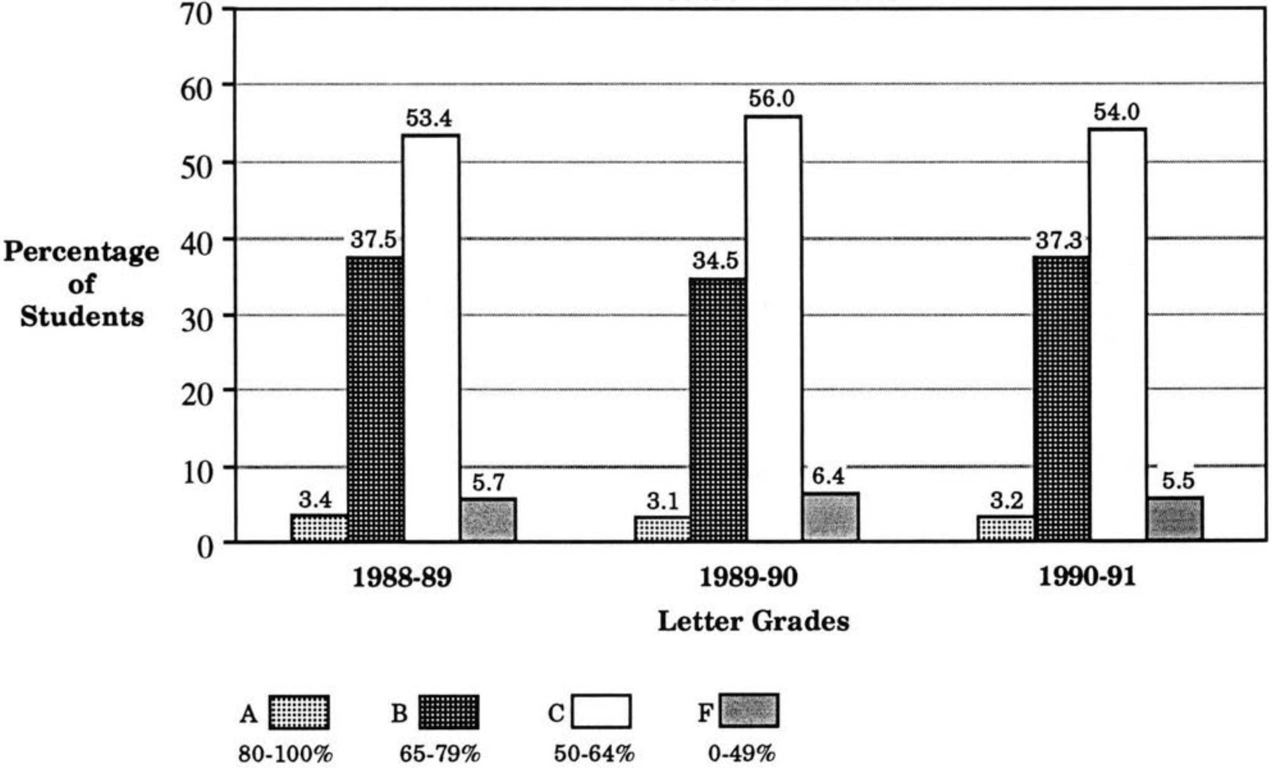


**Figure 2-7**
**English 33 Letter Grades for School-Awarded Mark,**
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**1990-91 School Year**

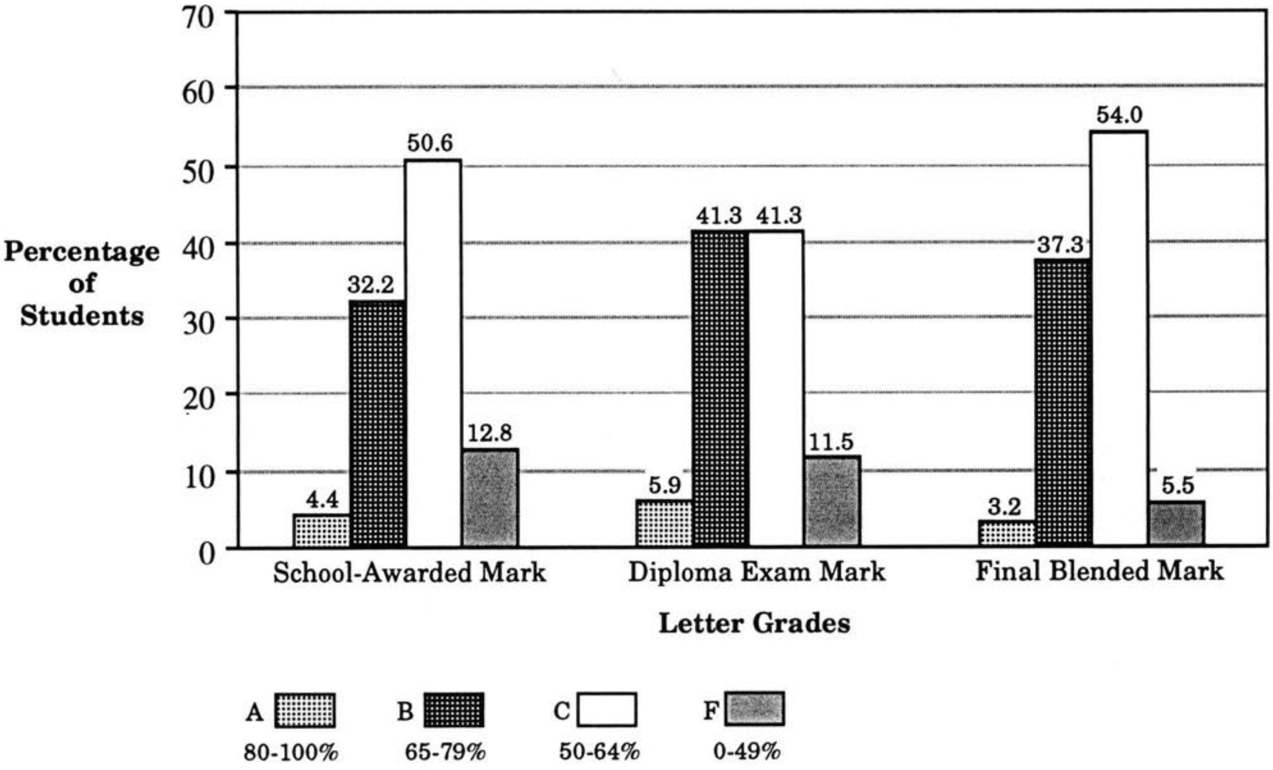


**Figure 2-8**
**Social Studies 30 Letter Grades for Final Blended Mark**
**Three School Years**

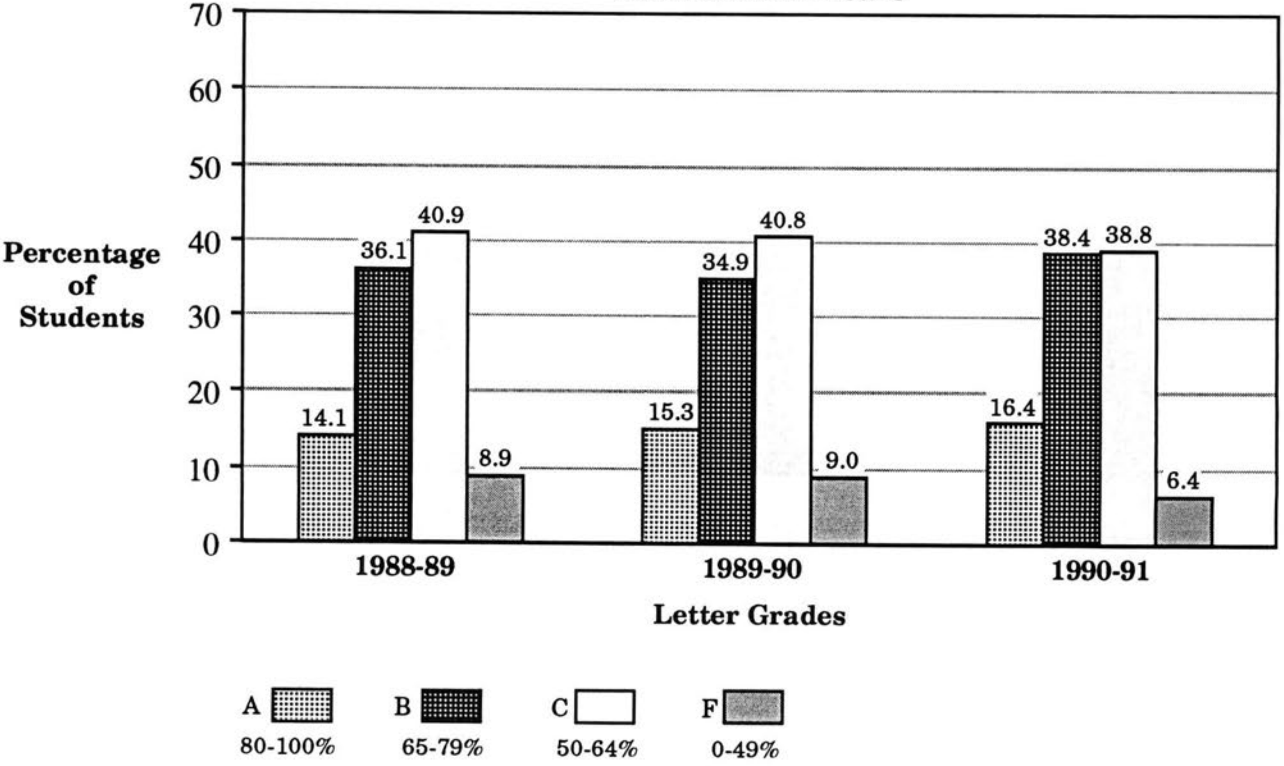


**Figure 2-9**
**Social Studies 30 Letter Grades for School-Awarded Mark,**
**Diploma Examination Mark, and Final Blended Mark**
**1990-91 School Year**

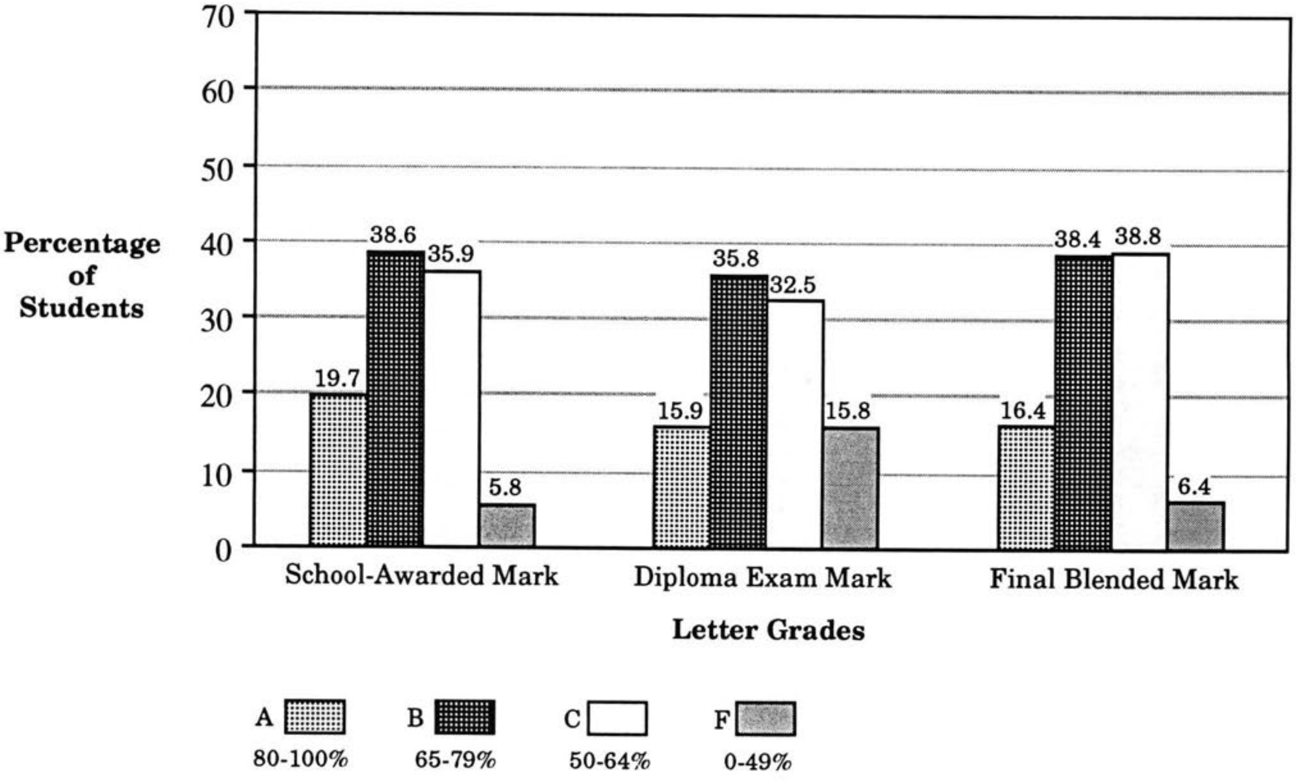


**Figure 2-10**
**Français 30 Letter Grades for Final Blended Mark**
**Three School Years**

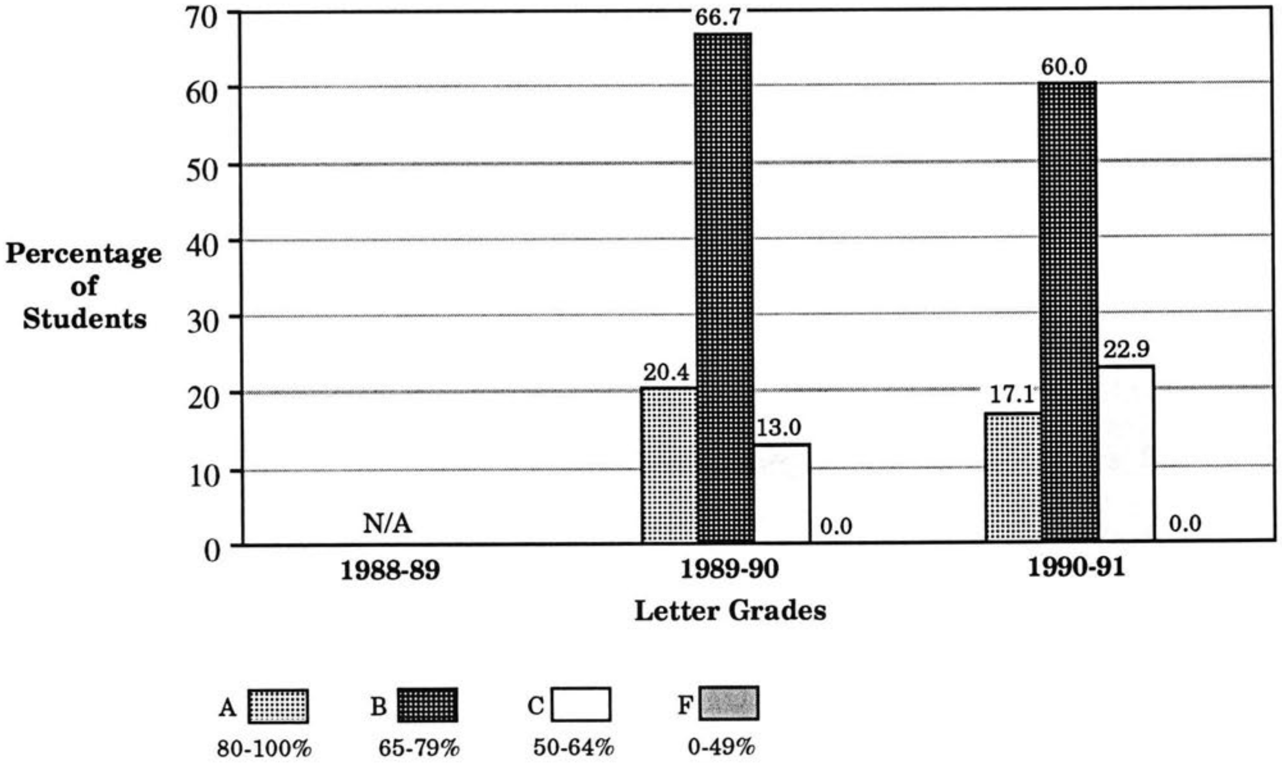


**Figure 2-11**
**Français 30 Letter Grades for School-Awarded Mark,**
**Diploma Examination Mark, and Final Blended Mark**
**1990-91 School Year**

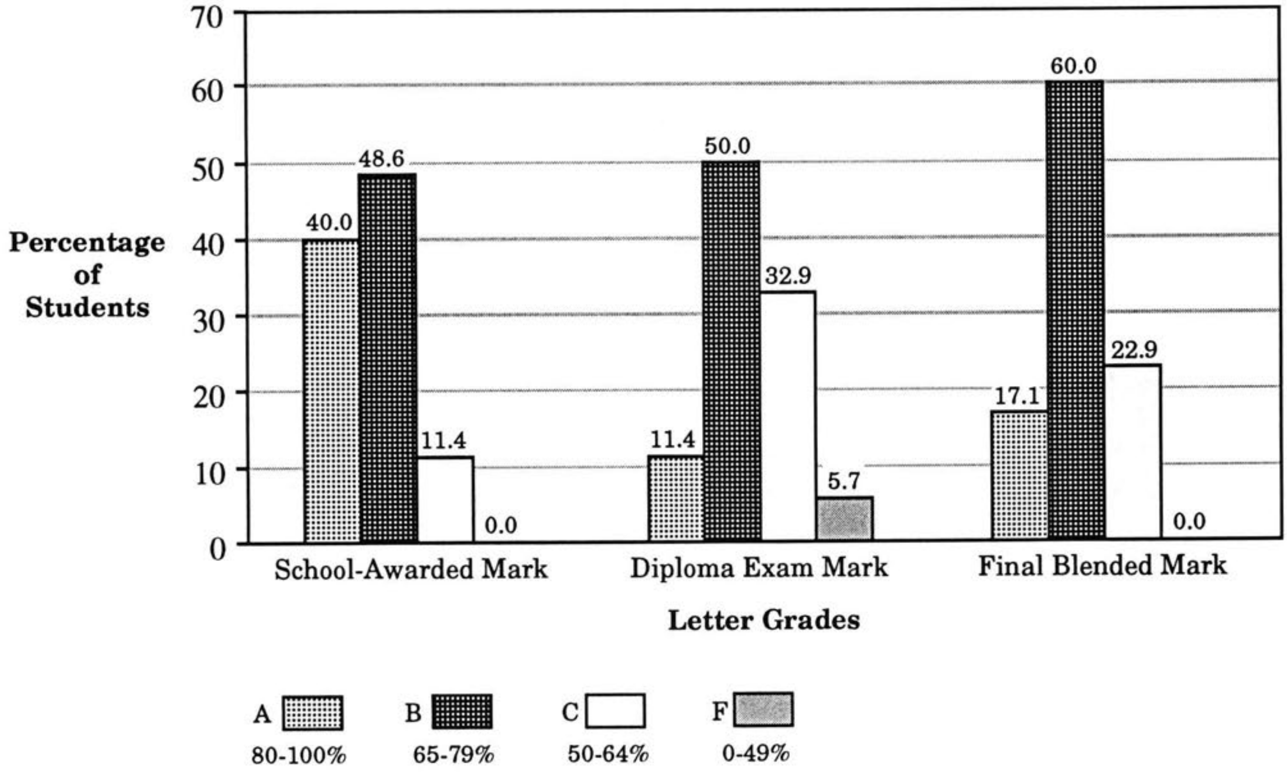


**Figure 2-12**
**Mathematics 30 Letter Grades for Final Blended Mark**
**Three School Years**

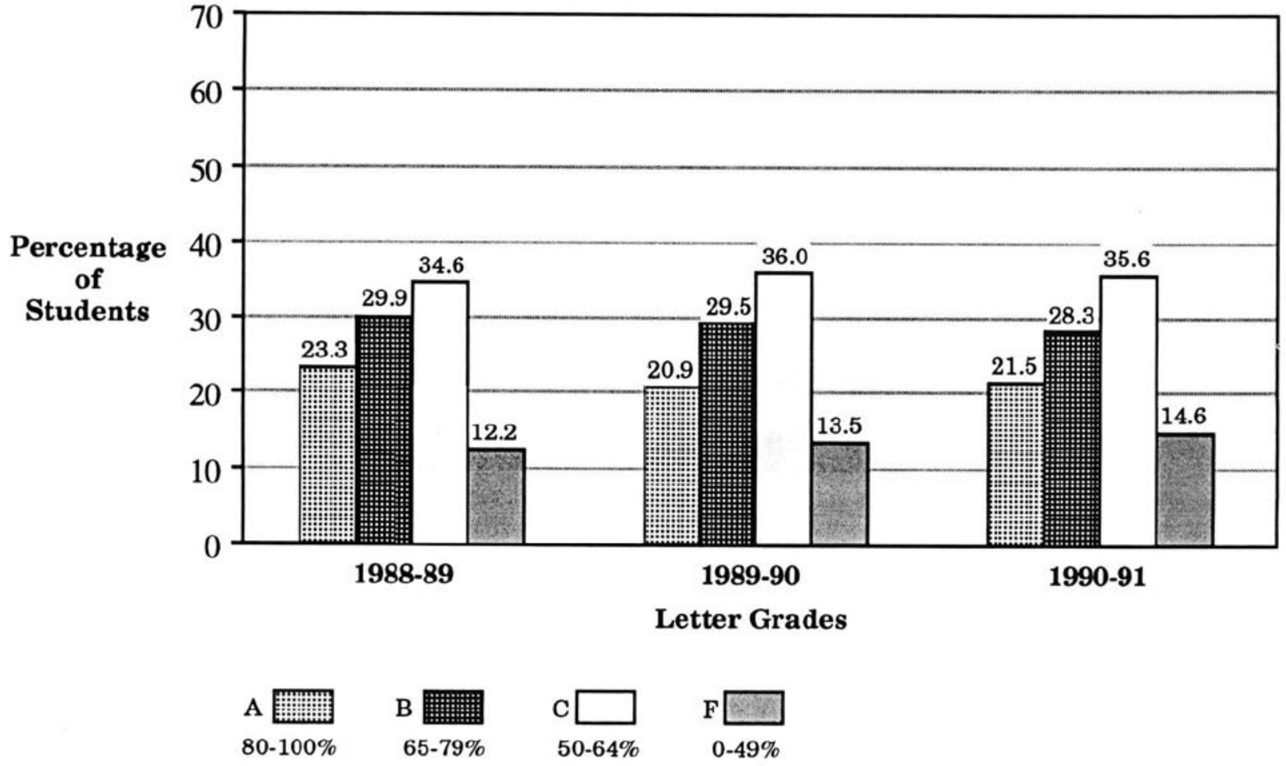


**Figure 2-13**
**Mathematics 30 Letter Grades for School-Awarded Mark, Diploma Examination Mark, and Final Blended Mark**
**1990-91 School Year**

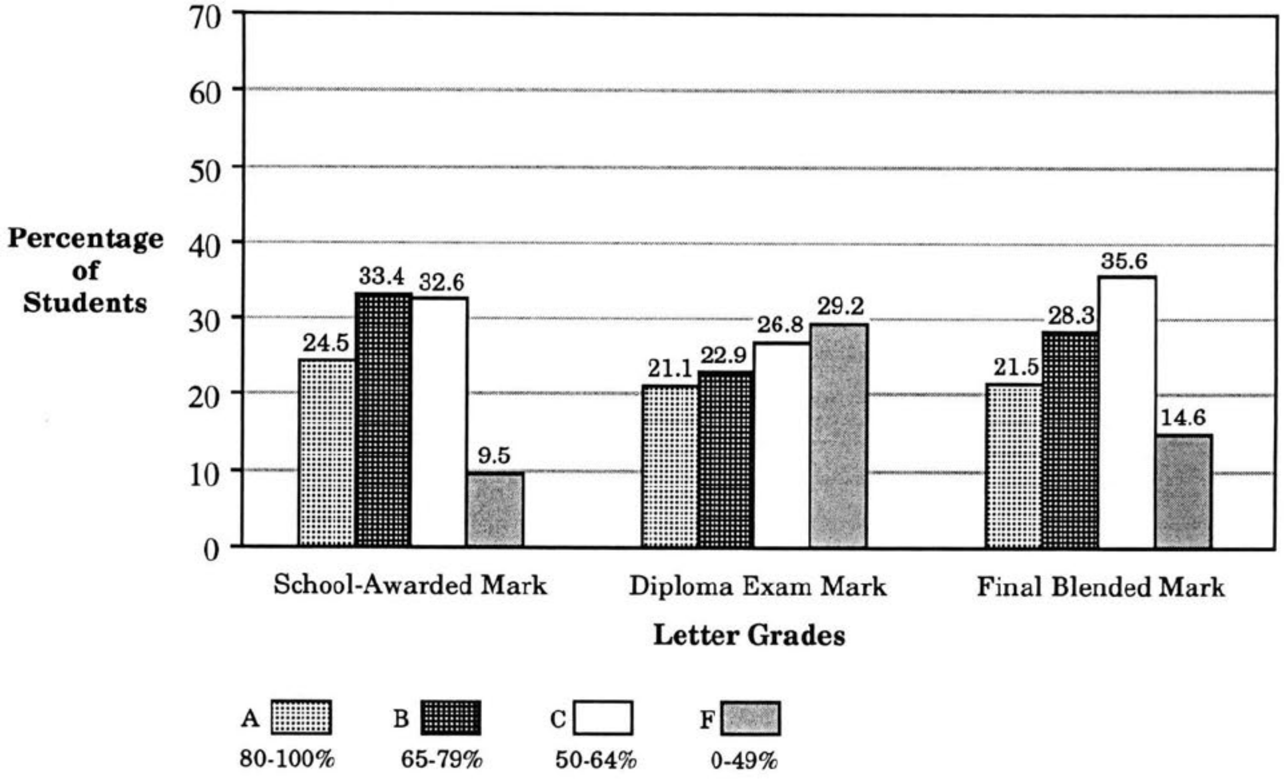


**Figure 2-14**
**Biology 30 Letter Grades for Final Blended Mark**
**Three School Years**

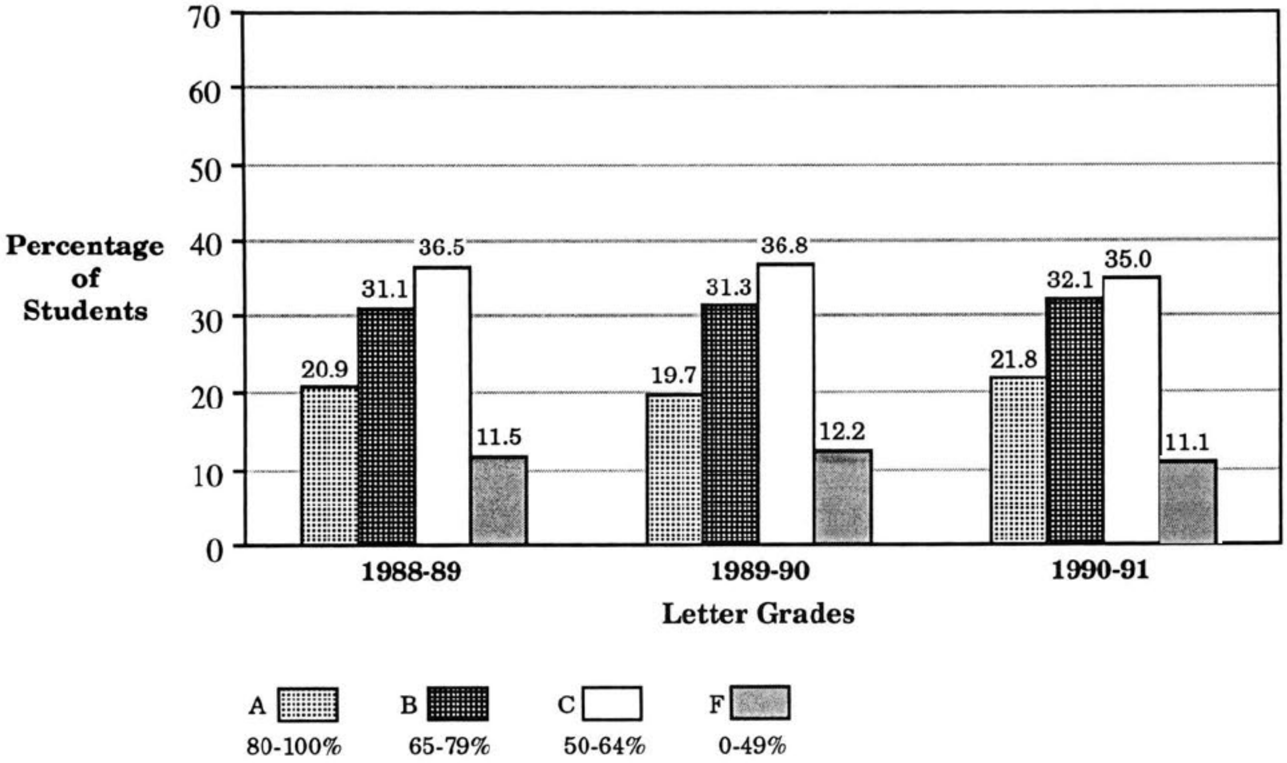
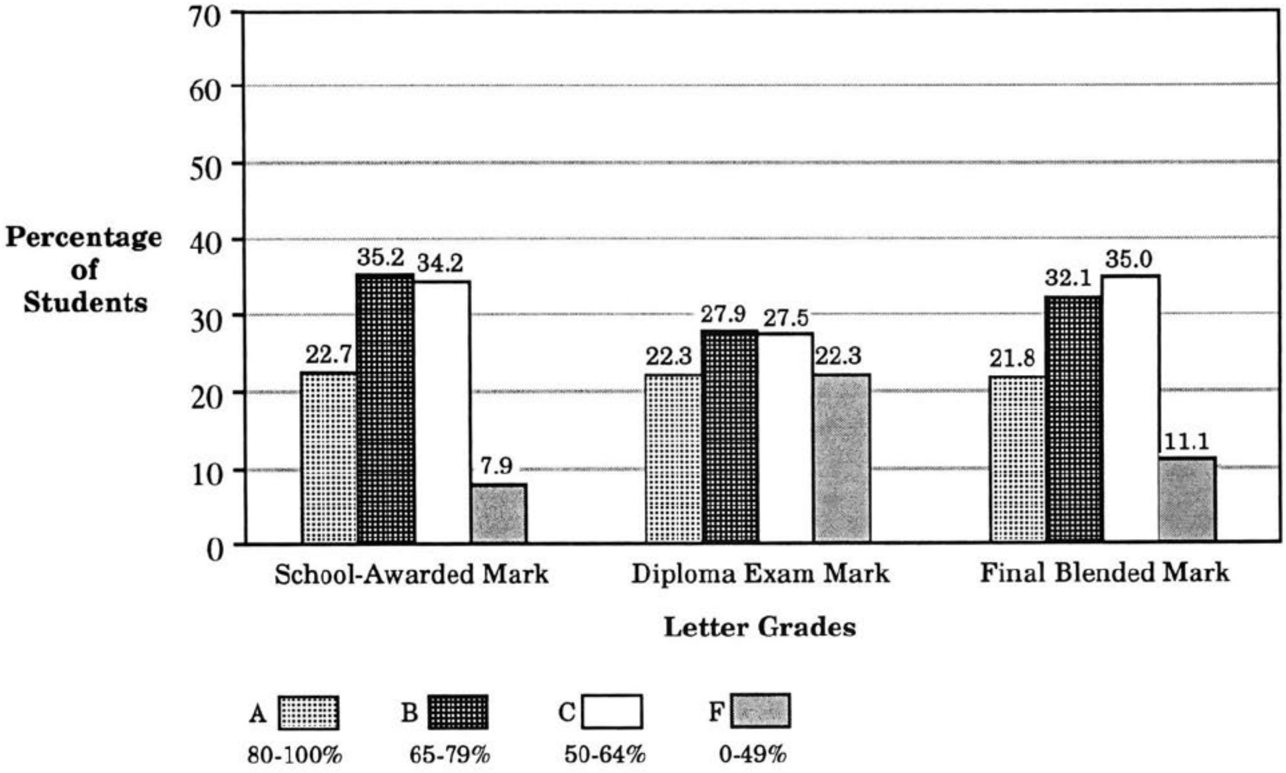
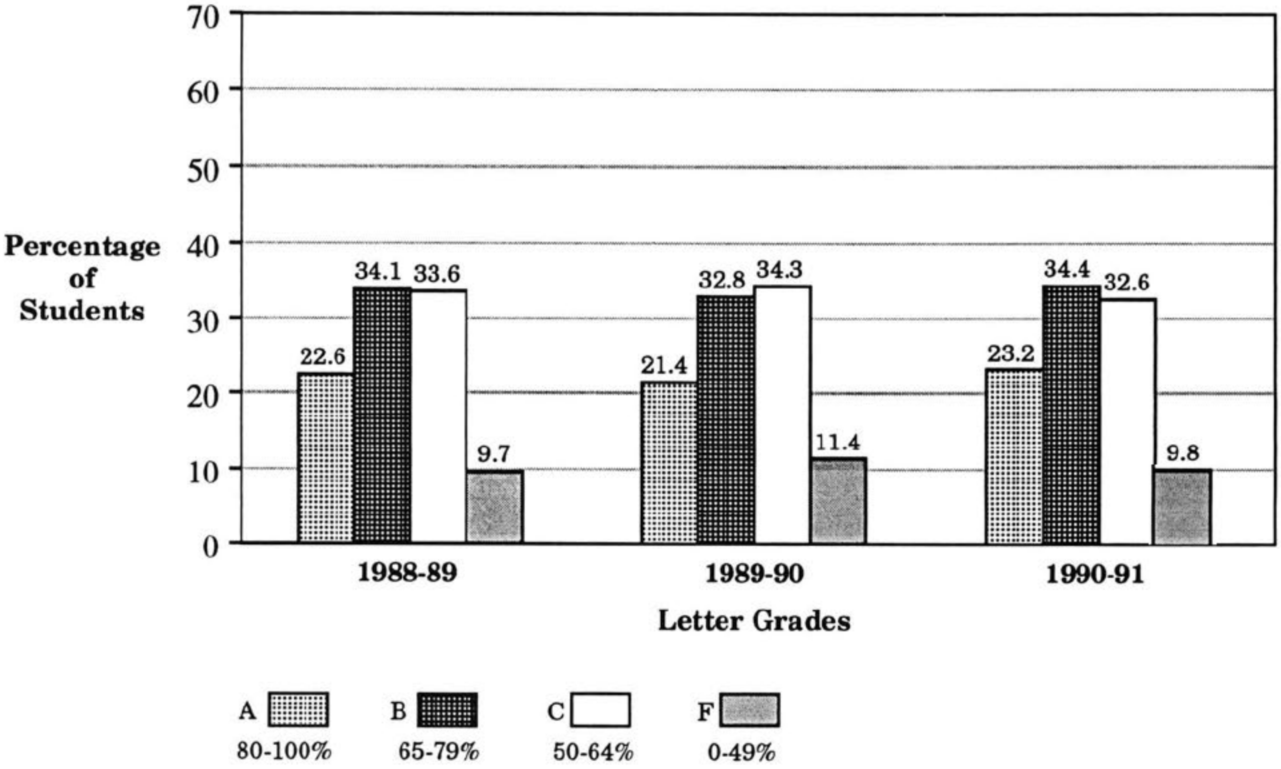


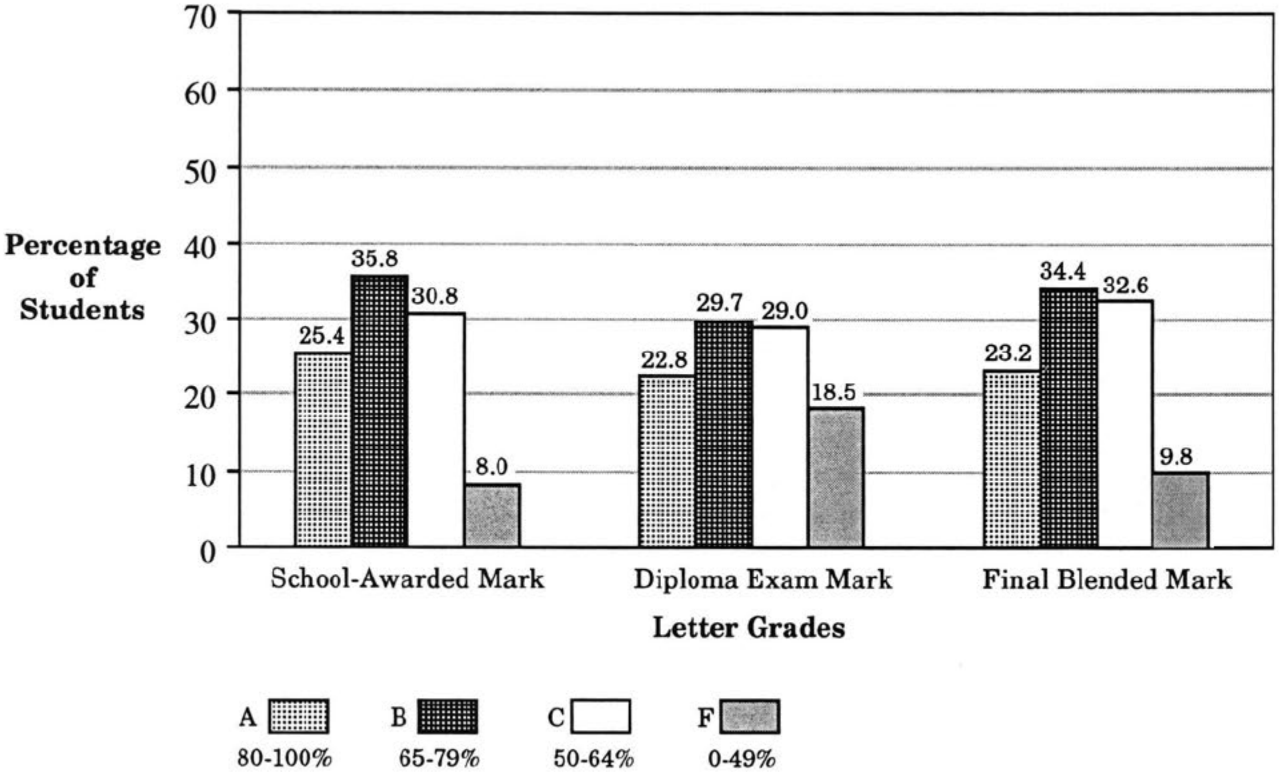
**Figure 2-15**
**Biology 30 Letter Grades for School-Awarded Mark,**
**Diploma Examination Mark, and Final Blended Mark**
**1990-91 School Year**



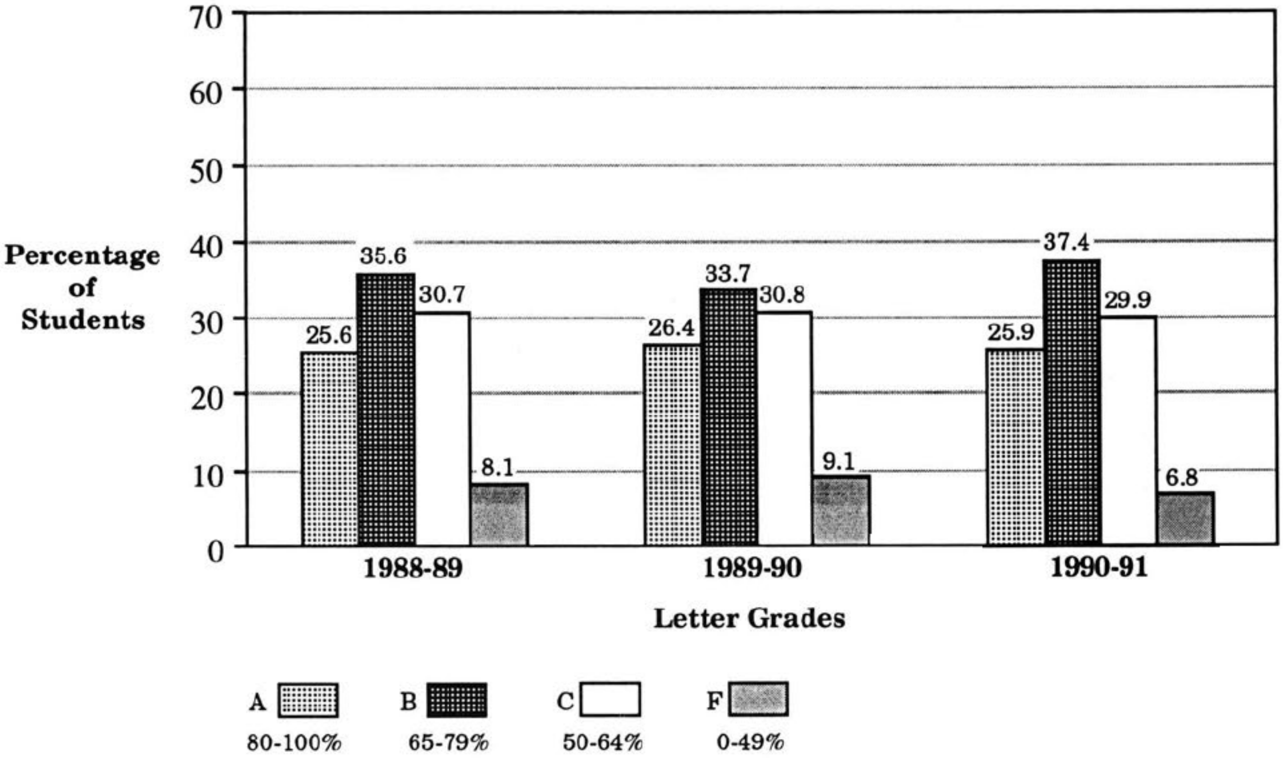
## Figure 2-16
## Chemistry 30 Letter Grades for Final Blended Mark
## Three School Years



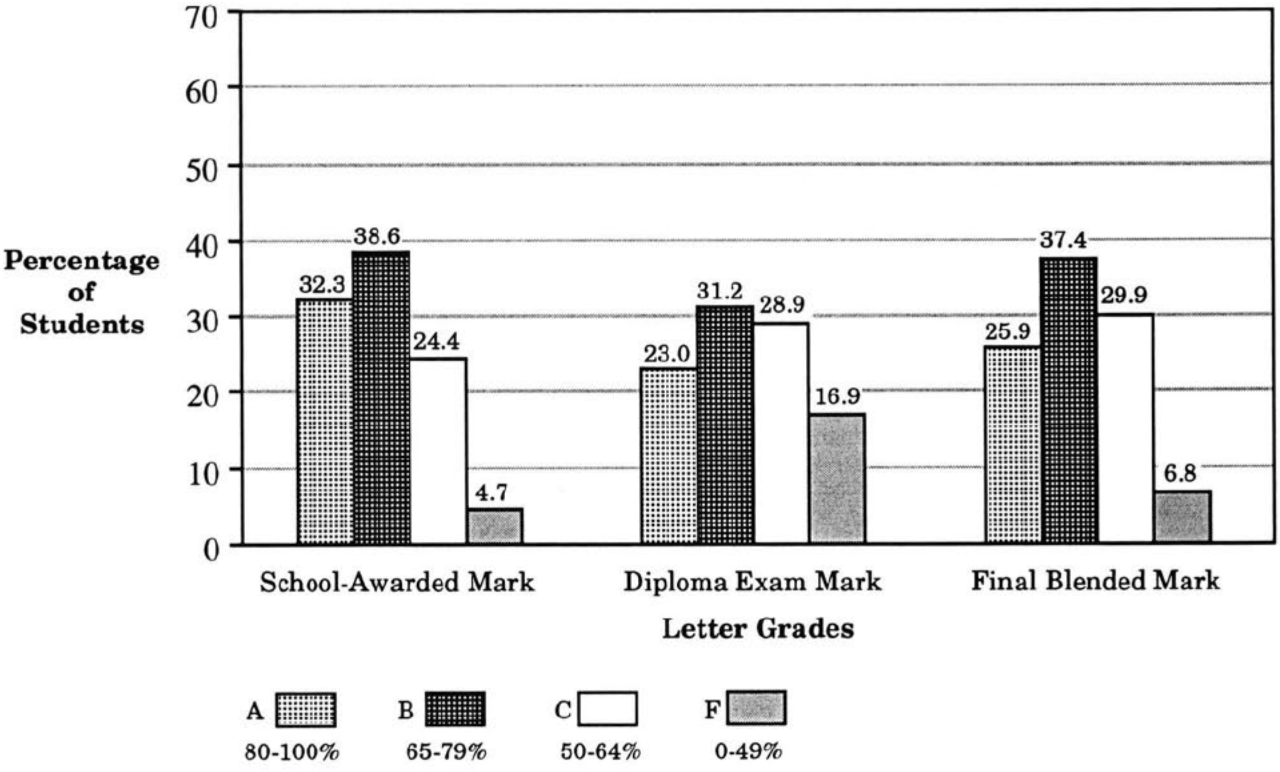
## Figure 2-17
## Chemistry 30 Letter Grades for School-Awarded Mark, Diploma Examination Mark, and Final Blended Mark
## 1990-91 School Year



### Figure 2-18
### Physics 30 Letter Grades for Final Blended Mark
### Three School Years



### Figure 2-19
### Physics 30 Letter Grades for School-Awarded Mark, Diploma Examination Mark, and Final Blended Mark
### 1990-91 School Year



**For each diploma examination course, what is the correlation between examination marks and school-awarded marks?**

Table 2-1 presents the correlation between diploma examination marks and school-awarded marks for each diploma examination course. The two marks should be related but not identical; therefore, these correlations are expected to be relatively high but less than 1.0.

One of the reasons that the correlations are expected to be less than 1.0 is that the marks represent two separate assessments of achievement, each based on an overlapping yet different set of curricular objectives. To a large degree, these objectives are similar; however, there is a necessary degree of difference.

The diploma examinations are limited to measuring achievement toward those objectives that can be assessed by paper and pencil tests. School assessments must include additional objectives such as laboratory skills in the sciences, or speaking and listening in English.

Other factors that contribute to the less-than-perfect correlations include variations among teachers' assessment practices, the longer time span of school-based assessment, the effect of failure to complete assignments, and the individual student's approach to the different types of assessment.

**Table 2-1**
**Correlation of Diploma Examination Marks and School-Awarded Marks by Course**
**1990-91 School Year**

| Subject | Number of Students | Correlation Coefficient |
|---|---|---|
| English 30 | 22 841 | .629 |
| English 33 | 8 586 | .373 |
| Social Studies 30 | 20 168 | .757 |
| Français 30 | 70 | .456 |
| Mathematics 30 | 18 268 | .811 |
| Biology 30 | 19 167 | .821 |
| Chemistry 30 | 15 312 | .803 |
| Physics 30 | 7 736 | .774 |

# SECTION 3
# RESULTS BY GENDER

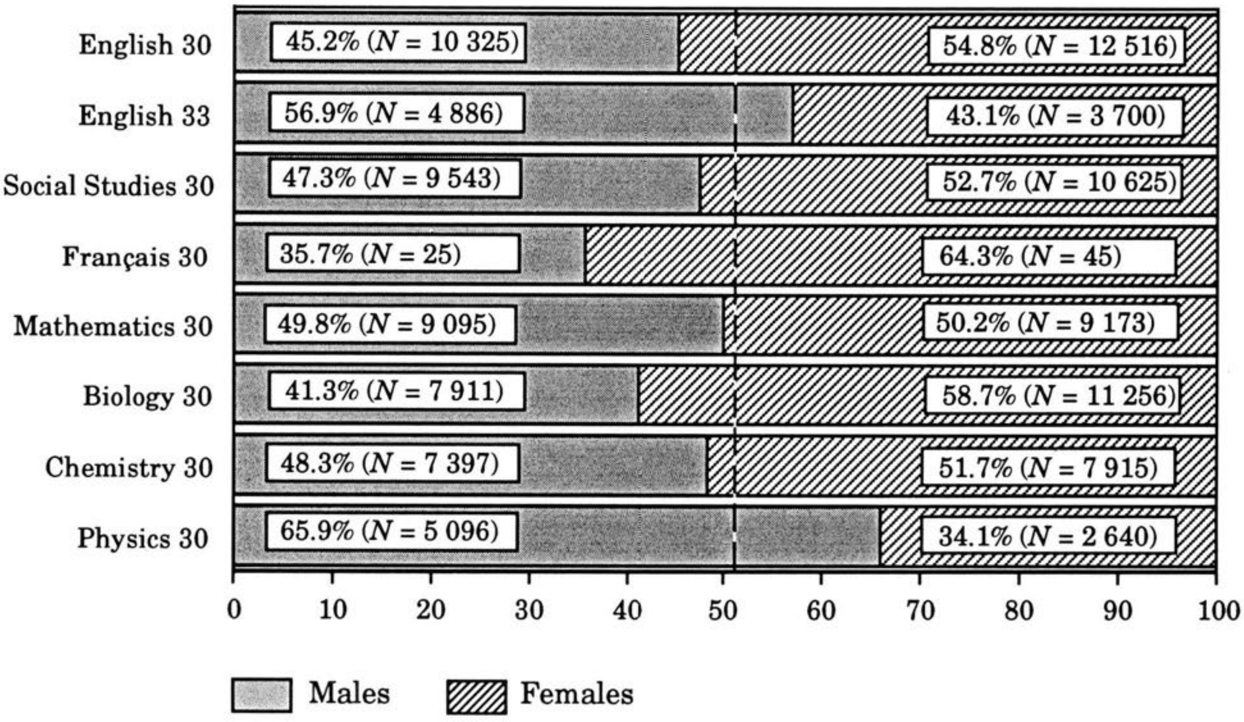
This section of the report provides separate results for males and females. These questions will be answered:

- What proportion of males and females registered in Grade 12 write diploma examinations?
- Is the percentage of males and females meeting standards the same in each course?
- Are males and females awarded similar school marks? Is the pattern the same for diploma examination marks?

**What proportion of males and females registered in Grade 12 write diploma examinations?**

Figure 3-1 shows that when comparing the ratio of males to females registered in Grade 12, a larger proportion of females wrote diploma examinations in all courses except for English 33 and Physics 30. To qualify for an Advanced High School Diploma in Alberta, a student must receive credit in English 30. That more females are writing English 30 examinations and more males are writing English 33 examinations suggests that males are less likely than females to be seeking an advanced diploma. This might account for the under-representation of males in most diploma examination courses.

**Figure 3-1**
**Ratio of Males to Females Writing Diploma Examinations**
**1990-91 School Year**

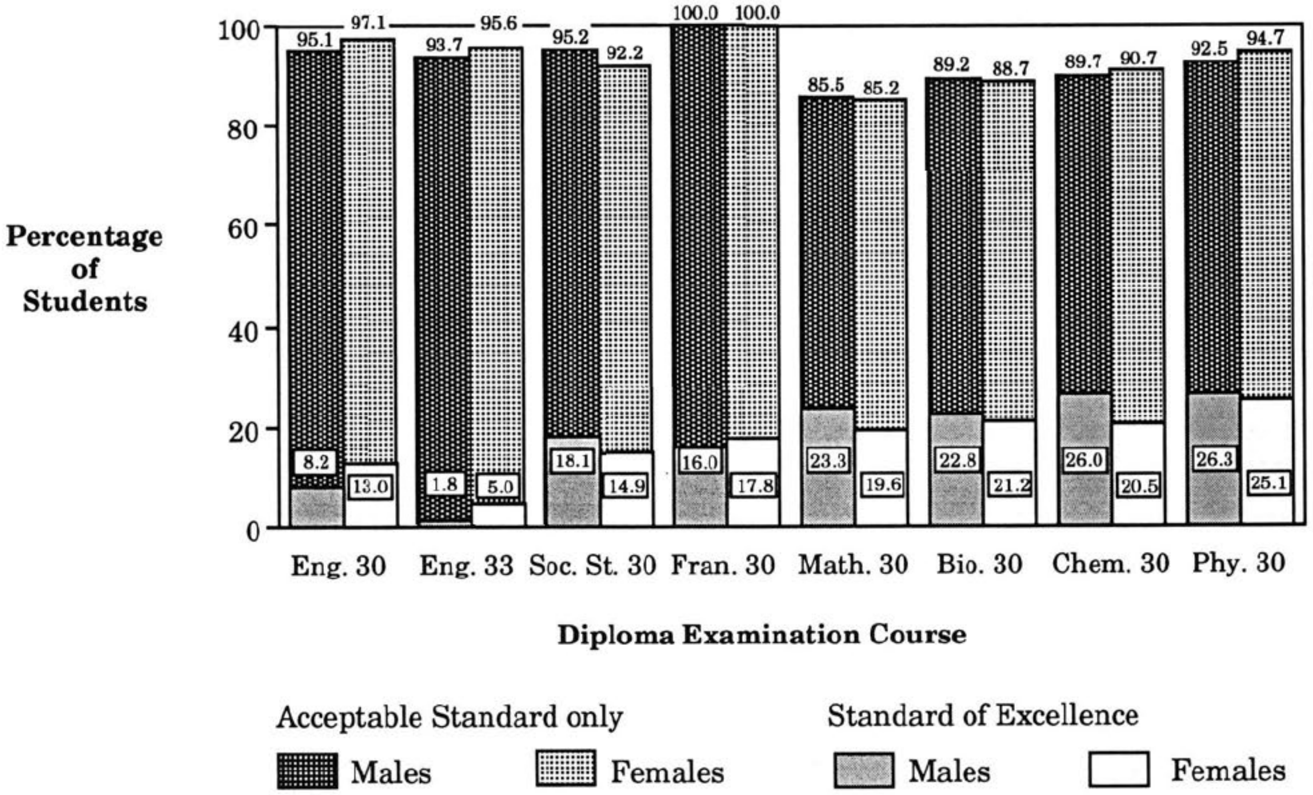


— — — The vertical dashed line shows the ratio of males and females registered in Grade 12 on September 30, 1990.

**Is the percentage of males and females meeting standards the same in each course?**

In terms of achievement based on blended marks, Figure 3-2 shows that a higher percentage of males achieved the standard of excellence in the mathematics/sciences courses and a higher percentage of females achieved the standard of excellence in the humanities courses, with the exception of Social Studies 30. The percentage of females who achieved the acceptable standard exceeded the percentage of males in all courses except for Social Studies 30, Mathematics 30, and Biology 30.

**Figure 3-2**
**Percentage of Students Achieving Acceptable Standard and Standard of Excellence (Blended Mark)**
**1990-91 School Year**



Number of Students

| Course | Meeting or Exceeding the Acceptable Standard | | Meeting or Exceeding the Standard of Excellence | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| English 30 | 9 817 | 12 157 | 849 | 1 635 |
| English 33 | 4 579 | 3 535 | 90 | 184 |
| Social Studies 30 | 9 087 | 9 792 | 1 728 | 1 579 |
| Français 30 | 25 | 45 | 4 | 8 |
| Mathematics 30 | 7 778 | 7 813 | 2 124 | 1 795 |
| Biology 30 | 7 060 | 9 981 | 1 807 | 2 381 |
| Chemistry 30 | 6 638 | 7 175 | 1 927 | 1 621 |
| Physics 30 | 4 711 | 2 499 | 1 339 | 662 |

**Are males and females awarded similar school marks? Is the pattern the same for diploma examination marks?**

A study of the school-awarded marks and diploma examination marks presented in Table 3-1 reveals some differences in the achievement of males and females. When averages in school-awarded marks are compared, females achieved similar or higher averages than males in all courses. When letter grades are examined, a similar or smaller percentage of females achieved the letter grade F in all courses. However, a smaller percentage of females than males achieved the letter grade A in Mathematics 30 and Chemistry 30.

In diploma examination marks, females achieved lower averages in Social Studies 30, Mathematics 30, Biology 30, and Chemistry 30. In letter grades, a smaller percentage of females achieved the letter grade A in all courses except for English 30 and English 33, and a larger percentage of females achieved the letter grade F in all courses except for English 30, English 33, and Physics 30.

Noteworthy differences between males and females occurred in English 30 and in Social Studies 30. In English 30, more than 20% of females achieved the letter grade A based on school-awarded marks but only 13% of males achieved the same letter grade. On the diploma examination the difference narrowed, with 10.9% of females and 7.4% of males achieving the letter grade A. In Social Studies 30, even though similar percentages of males and females achieved the letter grade A in school-awarded marks, 18.7% of males achieved the letter grade A based on diploma examination marks compared with 13.4% of the females. Similar percentages of males and females achieved an F in school-awarded marks, but almost 20% of the females compared with 11.3% of males achieved the letter grade F in diploma examination marks.

**Table 3-1**
**Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores**
**1990-91 School Year**

| Letter Grade | School-Awarded Mark | | | Diploma Exam Mark | | | Final Blended Mark | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| **English 30** | | | | | | | | | |
| A (80-100%) | 16.9 | 13.0 | 20.1 | 9.3 | 7.4 | 10.9 | 10.9 | 8.2 | 13.0 |
| B (65-79%) | 41.2 | 37.3 | 44.4 | 38.4 | 35.3 | 41.0 | 42.3 | 38.0 | 45.9 |
| C (50-64%) | 34.9 | 40.1 | 30.7 | 42.9 | 46.5 | 39.8 | 43.0 | 48.9 | 38.2 |
| F (0-49%) | 7.0 | 9.6 | 4.8 | 9.4 | 10.8 | 8.3 | 3.8 | 4.9 | 2.9 |
| Average (%) | 66.6 | 64.4 | 68.4 | 64.1 | 62.8 | 65.1 | 65.8 | 64.1 | 67.2 |
| Standard Deviation* (%) | 12.3 | 12.5 | 11.9 | 11.3 | 11.1 | 11.4 | 10.6 | 10.6 | 10.5 |

(Continued)

*Standard deviation is an indication of the amount of variation in a distribution. About 68% of the students' marks will fall within plus or minus one "standard deviation" of the average mark. On the English 30 Diploma Examination, for example, 68% of students who wrote the examination scored between 52.8% and 75.4%.

## Table 3-1 (*continued*)

| Letter Grade | School-Awarded Mark | | | Diploma Exam Mark | | | Final Blended Mark | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| **English 33** | | | | | | | | | |
| A (80-100%) | 4.4 | 2.3 | 7.0 | 5.9 | 4.8 | 7.3 | 3.2 | 1.8 | 5.0 |
| B (65-79%) | 32.2 | 25.7 | 40.7 | 41.3 | 41.4 | 41.2 | 37.3 | 32.7 | 43.4 |
| C (50-64%) | 50.6 | 56.1 | 43.4 | 41.3 | 42.2 | 40.2 | 54.0 | 59.2 | 47.2 |
| F (0-49%) | 12.8 | 15.9 | 8.9 | 11.5 | 11.6 | 11.3 | 5.5 | 6.3 | 4.4 |
| Average (%) | 60.3 | 58.1 | 63.2 | 63.2 | 62.9 | 63.6 | 62.2 | 60.9 | 63.9 |
| Standard Deviation (%) | 11.1 | 10.7 | 11.0 | 11.0 | 10.8 | 11.3 | 9.3 | 8.9 | 9.5 |
| **Social Studies 30** | | | | | | | | | |
| A (80-100%) | 19.7 | 19.9 | 19.6 | 15.9 | 18.7 | 13.4 | 16.4 | 18.1 | 14.9 |
| B (65-79%) | 38.6 | 38.8 | 38.4 | 35.8 | 38.8 | 33.0 | 38.4 | 40.3 | 36.7 |
| C (50-64%) | 35.9 | 35.6 | 36.2 | 32.5 | 31.2 | 33.7 | 38.8 | 36.8 | 40.6 |
| F (0-49%) | 5.8 | 5.7 | 5.8 | 15.8 | 11.3 | 19.9 | 6.4 | 4.8 | 7.8 |
| Average (%) | 67.4 | 67.5 | 67.2 | 64.6 | 66.7 | 62.7 | 66.3 | 67.5 | 65.3 |
| Standard Deviation (%) | 12.4 | 12.4 | 12.3 | 14.1 | 13.6 | 14.3 | 12.4 | 12.2 | 12.5 |
| **Français 30** | | | | | | | | | |
| A (80-100%) | 40.0 | 36.0 | 42.2 | 11.4 | 12.0 | 11.1 | 17.1 | 16.0 | 17.8 |
| B (65-79%) | 48.6 | 44.0 | 51.1 | 50.0 | 48.0 | 51.1 | 60.0 | 52.0 | 64.4 |
| C (50-64%) | 11.4 | 20.0 | 6.7 | 32.9 | 36.0 | 31.1 | 22.9 | 32.0 | 17.8 |
| F (0-49%) | 0.0 | 0.0 | 0.0 | 5.7 | 4.0 | 6.7 | 0.0 | 0.0 | 0.0 |
| Average (%) | 74.8 | 72.7 | 76.0 | 66.4 | 65.5 | 66.8 | 70.8 | 69.4 | 71.6 |
| Standard Deviation (%) | 9.9 | 11.5 | 8.8 | 10.6 | 9.6 | 11.2 | 8.8 | 9.4 | 8.4 |
| **Mathematics 30** | | | | | | | | | |
| A (80-100%) | 24.5 | 26.1 | 23.0 | 21.1 | 23.0 | 19.3 | 21.5 | 23.3 | 19.6 |
| B (65-79%) | 33.4 | 31.7 | 35.1 | 22.9 | 22.4 | 23.4 | 28.3 | 27.4 | 29.1 |
| C (50-64%) | 32.6 | 32.3 | 32.8 | 26.8 | 26.8 | 26.8 | 35.6 | 34.8 | 36.5 |
| F (0-49%) | 9.5 | 9.9 | 9.1 | 29.2 | 27.8 | 30.5 | 14.6 | 14.5 | 14.8 |
| Average (%) | 67.7 | 67.9 | 67.4 | 61.5 | 62.3 | 60.6 | 65.0 | 65.5 | 64.4 |
| Standard Deviation (%) | 14.8 | 15.2 | 14.4 | 19.2 | 19.6 | 18.9 | 16.3 | 16.6 | 15.9 |

(Continued)

**Table 3-1 *(continued)***

| Letter Grade | School-Awarded Mark | | | Diploma Exam Mark | | | Final Blended Mark | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| **Biology 30** | | | | | | | | | |
| A (80-100%) | 22.7 | 22.8 | 22.7 | 22.3 | 24.3 | 20.9 | 21.8 | 22.8 | 21.2 |
| B (65-79%) | 35.2 | 33.5 | 36.5 | 27.9 | 28.1 | 27.8 | 32.1 | 31.6 | 32.4 |
| C (50-64%) | 34.2 | 34.9 | 33.6 | 27.5 | 27.2 | 27.6 | 35.0 | 34.8 | 35.1 |
| F (0-49%) | 7.9 | 8.8 | 7.2 | 22.3 | 20.4 | 23.7 | 11.1 | 10.8 | 11.3 |
| Average (%) | 67.6 | 67.1 | 67.8 | 64.1 | 65.3 | 63.3 | 66.2 | 66.6 | 66.0 |
| Standard Deviation (%) | 13.3 | 13.7 | 13.1 | 17.2 | 17.3 | 17.1 | 14.6 | 14.8 | 14.5 |
| **Chemistry 30** | | | | | | | | | |
| A (80-100%) | 25.4 | 27.2 | 23.7 | 22.8 | 26.2 | 19.5 | 23.2 | 26.0 | 20.5 |
| B (65-79%) | 35.8 | 33.7 | 37.9 | 29.7 | 29.4 | 30.1 | 34.4 | 33.0 | 35.7 |
| C (50-64%) | 30.8 | 30.0 | 31.5 | 29.0 | 26.9 | 31.0 | 32.6 | 30.7 | 34.5 |
| F (0-49%) | 8.0 | 9.1 | 6.9 | 18.5 | 17.5 | 19.4 | 9.8 | 10.3 | 9.3 |
| Average (%) | 68.5 | 68.6 | 68.3 | 65.2 | 66.4 | 64.1 | 67.3 | 68.0 | 66.7 |
| Standard Deviation (%) | 14.0 | 14.6 | 13.4 | 16.7 | 17.2 | 16.2 | 14.6 | 15.2 | 14.0 |
| **Physics 30** | | | | | | | | | |
| A (80-100%) | 32.3 | 31.1 | 34.7 | 23.0 | 24.1 | 21.0 | 25.9 | 26.3 | 25.1 |
| B (65-79%) | 38.6 | 37.1 | 41.5 | 31.2 | 30.4 | 32.7 | 37.4 | 35.8 | 40.6 |
| C (50-64%) | 24.4 | 26.4 | 20.6 | 28.9 | 28.2 | 30.2 | 29.9 | 30.4 | 29.0 |
| F (0-49%) | 4.7 | 5.4 | 3.2 | 16.9 | 17.3 | 16.1 | 6.8 | 7.5 | 5.3 |
| Average (%) | 71.7 | 71.1 | 72.9 | 65.9 | 66.1 | 65.6 | 69.2 | 69.0 | 69.6 |
| Standard Deviation (%) | 13.1 | 13.5 | 12.1 | 16.2 | 16.5 | 15.5 | 13.8 | 14.2 | 13.0 |

## SUMMARY

There appear to be gender differences in the marks obtained in the diploma examination courses. A larger proportion of females than males are writing the diploma examinations, suggesting that more females are choosing to obtain an advanced diploma. Although the achievement of females is similar to or higher than the achievement of males in school-awarded marks, their achievement on most of the diploma examinations is below the achievement of males. Individual jurisdiction results will show patterns that differ from the province-wide results and therefore school boards may wish to explore for gender differences in their own jurisdictions. At the provincial level, further analyses will be carried out to determine if gender differences are influenced by the types of questions asked.

# SECTION 4
# RESULTS FOR POPULATION SUBGROUPS

The majority of students who wrote the 1990-91 diploma examinations took the course in school as regular students; the second largest group were mature students with current school-awarded marks.* Results for students with both school-awarded marks and diploma examination marks are reported in sections 2 and 3 of this report. This section reports the results for all students, *including those with no school-awarded marks*.

These questions will be answered:

- Does the percentage of mature students writing diploma examinations vary across courses?
- How does the performance of mature students with current school-awarded marks compare with the performance of regular students with current school-awarded marks?
- How does the performance of students with school marks brought forward compare with the results of students with current school-awarded marks?
- How does the performance of mature students challenging the examination compare with the performance of other mature student subgroups?
- For subgroups with both school-awarded marks and diploma examination marks, how does the diploma examination mark average compare with the school-awarded mark average?

### SUBGROUP DEFINITIONS

Subgroups are defined by a combination of mature status and school-awarded mark status. Students in all subgroups have a current diploma examination mark. The subgroups are as follows:

- **Regular School**: students with a current school-awarded mark. This group is comprised of regular students and mature students:

  *Regular Students*: students with a current school-awarded mark

  *Mature Students*: students with mature status and a current school-awarded mark
- **Regular Students, School Mark Brought Forward**: students without a current school-awarded mark but with an earlier school-awarded mark.
- **Mature Students, School Mark Brought Forward**: students with mature status who have no current school-awarded mark but do have an earlier school-awarded mark.
- **Mature Students, Challenging Examination**: students with mature status who have no school-awarded mark.
- **Regular Students, No School Mark**: students with no school-awarded mark.

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*A student with mature status is one who, as of September 1 of the current school year, is 20 years of age or older *or* is 19 years of age and has been out of school for eight consecutive months since reaching the age of 18 *or* is the holder of a previously awarded high school diploma or equivalent (see the *Guide to Education, Senior High School Handbook, 1991-92,* page 71).

Note:

1. Mature students "challenging" a diploma examination do not take the course but do receive course credit if they pass the examination; regular students with no school-awarded mark receive no course credit.
2. When a mature student earns a diploma examination mark that is higher than that student's school-awarded mark, the former becomes the final mark; otherwise, the normal blending is done to calculate the final mark.

## EXCLUDED GROUPS

Not included in any of the groups are students who were exempted from all or part of the examination or who wrote a substantially different form of the examination because of special considerations. Students in English 30 or English 33 who, by special permission, wrote the two parts of the examination in two different examination sittings (e.g., January and June) are also excluded. Very few students fall into these categories.

## RESULTS

Three tables are provided for each diploma examination course. In the first table are the number and percentage of regular and mature students writing. In the second table are the frequency, average diploma examination mark, and standard deviation of diploma examination marks for all subgroups. The third table provides data for those subgroups with school-awarded marks. It includes the frequency, average school-awarded mark, and standard deviation of school-awarded marks for these subgroups.

## ENGLISH 30

Achievement in English 30 by subgroups is compared in tables 4-1 to 4-3. About one in six English 30 students who wrote the 1990-91 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average in diploma examination marks.

Mature students with school marks brought forward and regular students with no school marks achieved lower averages in diploma examination marks compared with the other subgroups.

**Table 4-1**
**English 30**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 19 379 | 82.0 |
| Mature Students | 4 251 | 18.0 |
| Total | 23 630 | 100.0 |

**Table 4-2**
**English 30**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 21 944 | 64.2 | 11.3 |
| Regular Students | 18 578 | 64.7 | 11.0 |
| Mature Students | 3 366 | 61.2 | 12.1 |
| Regular Students, School Mark Brought Forward | 697 | 63.0 | 11.9 |
| Mature Students, School Mark Brought Forward | 200 | 55.1 | 11.1 |
| Mature Students, Challenging Examination | 685 | 61.1 | 13.4 |
| Regular Students, No School Mark | 104 | 59.1 | 14.4 |

**Table 4-3**
**English 30**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 21 944 | 66.5 | 12.3 |
| Regular Students | 18 578 | 66.8 | 12.3 |
| Mature Students | 3 366 | 65.1 | 12.7 |
| Regular Students, School Mark Brought Forward | 697 | 68.0 | 12.9 |
| Mature Students, School Mark Brought Forward | 200 | 66.0 | 9.8 |

*For an explanation of standard deviation, please see the footnote to Table 3-1.

## ENGLISH 33

Achievement in English 33 by subgroups is compared in tables 4-4 to 4-6. About one in seven English 33 students who wrote the 1990-91 diploma examinations had mature status.

Of students with current school-awarded marks, mature students achieved a higher average in school-awarded marks than regular students did; however, regular students achieved a slightly higher average on the diploma examination than mature students did.

Among all subgroups, mature students challenging examinations achieved the highest average in diploma examination marks. Subgroups with school marks brought forward achieved much lower averages in diploma examination marks compared with the other subgroups.

**Table 4-4**
**English 33**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 7 761 | 86.0 |
| Mature Students | 1 264 | 14.0 |
| Total | 9 025 | 100.0 |

**Table 4-5**
**English 33**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 8 442 | 63.4 | 10.9 |
| Regular Students | 7 576 | 63.4 | 10.4 |
| Mature Students | 866 | 62.8 | 14.5 |
| Regular Students, School Mark Brought Forward | 113 | 56.6 | 13.3 |
| Mature Students, School Mark Brought Forward | 31 | 44.6 | 10.3 |
| Mature Students, Challenging Examination | 367 | 65.9 | 13.5 |
| Regular Students, No School Mark | 72 | 64.3 | 11.4 |

**Table 4-6**
**English 33**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 8 442 | 60.4 | 11.1 |
| Regular Students | 7 576 | 60.1 | 10.8 |
| Mature Students | 866 | 63.3 | 12.8 |
| Regular Students, School Mark Brought Forward | 113 | 52.1 | 10.6 |
| Mature Students, School Mark Brought Forward | 31 | 54.6 | 8.6 |

*For an explanation of standard deviation, please see the footnote to Table 3-1.

## SOCIAL STUDIES 30

Achievement in Social Studies 30 by subgroups is compared in tables 4-7 to 4-9. About one in ten Social Studies 30 students who wrote the 1990-91 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the diploma examination.

Subgroups with no current school-awarded marks achieved much lower averages in diploma examination marks than regular school subgroups did.

**Table 4-7**
**Social Studies 30**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 18 438 | 90.1 |
| Mature Students | 2 033 | 9.9 |
| Total | 20 471 | 100.0 |

**Table 4-8**
**Social Studies 30**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 19 811 | 64.7 | 14.1 |
| Regular Students | 18 054 | 65.1 | 14.0 |
| Mature Students | 1 757 | 61.5 | 14.5 |
| Regular Students, School Mark Brought Forward | 294 | 55.8 | 14.8 |
| Mature Students, School Mark Brought Forward | 63 | 50.7 | 13.0 |
| Mature Students, Challenging Examination | 213 | 58.3 | 15.8 |
| Regular Students, No School Mark | 90 | 54.1 | 15.2 |

**Table 4-9**
**Social Studies 30**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 19 811 | 67.5 | 12.3 |
| Regular Students | 18 054 | 67.6 | 12.3 |
| Mature Students | 1 757 | 66.4 | 12.5 |
| Regular Students, School Mark Brought Forward | 294 | 61.2 | 13.4 |
| Mature Students, School Mark Brought Forward | 63 | 62.9 | 11.0 |

*For an explanation of standard deviation, please see the footnote to Table 3-1.

# FRANÇAIS 30

Achievement in Français 30 by subgroups is compared in tables 4-10 to 4-12.

Because the total number of students who wrote the Français 30 diploma examination is very small, results should be interpreted with caution.

**Table 4-10**
**Français 30**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 70 | 90.9 |
| Mature Students | 7 | 9.1 |
| Total | 77 | 100.0 |

**Table 4-11**
**Français 30**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 70 | 66.4 | 10.6 |
| Regular Students | 69 | 66.6 | 10.4 |
| Mature Students | 1 | N/A | N/A |
| Regular Students, School Mark Brought Forward | 0 | N/A | N/A |
| Mature Students, School Mark Brought Forward | 0 | N/A | N/A |
| Mature Students, Challenging Examination | 6 | 73.7 | 7.0 |
| Regular Students, No School Mark | 1 | N/A | N/A |

**Table 4-12**
**Français 30**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 70 | 74.8 | 9.9 |
| Regular Students | 69 | 74.7 | 9.9 |
| Mature Students | 1 | N/A | N/A |
| Regular Students, School Mark Brought Forward | 0 | N/A | N/A |
| Mature Students, School Mark Brought Forward | 0 | N/A | N/A |

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*For an explanation of standard deviation, please see the footnote to Table 3-1.

## MATHEMATICS 30

Achievement in Mathematics 30 by subgroups is compared in tables 4-13 to 4-15. About one in five Mathematics 30 students who wrote the 1990-91 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with school marks brought forward achieved the highest average on the diploma examination.

All other subgroups with no current school marks achieved much lower averages in diploma examination marks than regular school subgroups did.

**Table 4-13**
**Mathematics 30**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 14 859 | 79.4 |
| Mature Students | 3 863 | 20.6 |
| Total | 18 722 | 100.0 |

**Table 4-14**
**Mathematics 30**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 17 526 | 61.4 | 19.2 |
| Regular Students | 14 183 | 62.0 | 19.3 |
| Mature Students | 3 343 | 58.7 | 18.6 |
| Regular Students, School Mark Brought Forward | 602 | 67.0 | 20.0 |
| Mature Students, School Mark Brought Forward | 140 | 48.1 | 15.3 |
| Mature Students, Challenging Examination | 380 | 51.7 | 23.8 |
| Regular Students, No School Mark | 74 | 48.8 | 25.6 |

**Table 4-15**
**Mathematics 30**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 17 526 | 67.6 | 14.8 |
| Regular Students | 14 183 | 67.9 | 14.7 |
| Mature Students | 3 343 | 66.6 | 15.2 |
| Regular Students, School Mark Brought Forward | 602 | 70.1 | 15.3 |
| Mature Students, School Mark Brought Forward | 140 | 63.7 | 13.1 |

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*For an explanation of standard deviation, please see the footnote to Table 3-1.

# BIOLOGY 30

Achievement in Biology 30 by subgroups is compared in tables 4-16 to 4-18. About one in six Biology 30 students who wrote the 1990-91 diploma examinations had mature status.

Of students with current school-awarded marks, mature students achieved a higher average in school-awarded marks than regular students did and the same average in diploma examination marks as regular students did.

Among all subgroups, students with current school-awarded marks achieved the highest average on the diploma examination.

Subgroups with no current school-awarded marks achieved much lower averages in diploma examination marks than regular school subgroups did.

**Table 4-16**
**Biology 30**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 16 139 | 82.3 |
| Mature Students | 3 464 | 17.7 |
| Total | 19 603 | 100.0 |

**Table 4-17**
**Biology 30**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 18 697 | 64.4 | 17.2 |
| Regular Students | 15 743 | 64.4 | 17.2 |
| Mature Students | 2 954 | 64.4 | 16.9 |
| Regular Students, School Mark Brought Forward | 340 | 54.4 | 16.1 |
| Mature Students, School Mark Brought Forward | 130 | 49.1 | 12.9 |
| Mature Students, Challenging Examination | 380 | 54.6 | 19.8 |
| Regular Students, No School Mark | 56 | 48.9 | 18.3 |

**Table 4-18**
**Biology 30**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 18 697 | 67.7 | 13.3 |
| Regular Students | 15 743 | 67.3 | 13.4 |
| Mature Students | 2 954 | 69.8 | 12.9 |
| Regular Students, School Mark Brought Forward | 340 | 61.2 | 13.4 |
| Mature Students, School Mark Brought Forward | 130 | 64.9 | 10.9 |

*For an explanation of standard deviation, please see the footnote to Table 3-1.

## CHEMISTRY 30

Achievement in Chemistry 30 by subgroups is compared in tables 4-19 to 4-21. About one in six Chemistry 30 students who wrote the 1990-91 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, students with current school-awarded marks and regular students with school marks brought forward achieved the highest average in diploma examination marks.

Students with no current school marks, except regular students with school marks brought forward, achieved much lower averages than regular school subgroups did.

**Table 4-19**
**Chemistry 30**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 12 771 | 81.9 |
| Mature Students | 2 825 | 18.1 |
| Total | 15 596 | 100.0 |

**Table 4-20**
**Chemistry 30**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 15 034 | 65.3 | 16.7 |
| Regular Students | 12 522 | 65.4 | 16.8 |
| Mature Students | 2 512 | 64.3 | 15.7 |
| Regular Students, School Mark Brought Forward | 205 | 65.2 | 18.1 |
| Mature Students, School Mark Brought Forward | 73 | 50.2 | 15.3 |
| Mature Students, Challenging Examination | 240 | 56.6 | 19.7 |
| Regular Students, No School Mark | 44 | 47.5 | 19.9 |

**Table 4-21**
**Chemistry 30**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 15 034 | 68.5 | 13.9 |
| Regular Students | 12 522 | 68.6 | 13.9 |
| Mature Students | 2 512 | 68.2 | 13.8 |
| Regular Students, School Mark Brought Forward | 205 | 69.3 | 15.6 |
| Mature Students, School Mark Brought Forward | 73 | 63.4 | 14.2 |

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*For an explanation of standard deviation, please see the footnote to Table 3-1.

# PHYSICS 30

Achievement in Physics 30 by subgroups is compared in tables 4-22 to 4-24. About one in six Physics 30 students who wrote the 1990-91 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the diploma examination.

Students with no current school marks, except regular students with school marks brought forward, achieved much lower averages than regular school subgroups did.

**Table 4-22**
**Physics 30**
**Status of Students Writing**

| Type | Number | Percentage |
|---|---|---|
| Regular Students | 6 662 | 84.3 |
| Mature Students | 1 245 | 15.7 |
| Total | 7 907 | 100.0 |

**Table 4-23**
**Physics 30**
**Diploma Examination Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 7 589 | 66.0 | 16.2 |
| Regular Students | 6 525 | 66.1 | 16.3 |
| Mature Students | 1 064 | 65.4 | 14.9 |
| Regular Students, School Mark Brought Forward | 109 | 65.0 | 17.2 |
| Mature Students, School Mark Brought Forward | 38 | 54.3 | 14.0 |
| Mature Students, Challenging Examination | 143 | 57.1 | 18.9 |
| Regular Students, No School Mark | 28 | 55.3 | 24.4 |

**Table 4-24**
**Physics 30**
**School-Awarded Marks for Population Subgroups**

| Subgroup | Number of Students | Average | Standard Deviation* |
|---|---|---|---|
| All Regular School | 7 589 | 71.7 | 13.1 |
| Regular Students | 6 525 | 71.9 | 13.2 |
| Mature Students | 1 064 | 70.6 | 12.6 |
| Regular Students, School Mark Brought Forward | 109 | 70.5 | 14.0 |
| Mature Students, School Mark Brought Forward | 38 | 66.6 | 12.6 |

*For an explanation of standard deviation, please see the footnote to Table 3-1.

## SUMMARY

In this summary of subgroup results, the data for Français 30 are not included because of the small number of students who wrote the examination.

**Does the percentage of mature students writing diploma examinations vary across courses?**

The percentage of mature students writing examinations ranged from approximately 10% in Social Studies 30 to over 20% in Mathematics 30. The large percentage of mature students writing the Mathematics 30 examination could, in part, be related to the large number of students who rewrite the Mathematics 30 examination (see Section 5 of this report).

**How does the performance of mature students with current school-awarded marks compare with the performance of regular students with current school-awarded marks?**

Regular students with current school-awarded marks achieved the same or higher averages in diploma examination marks than mature students with current school-awarded marks. In fact, regular students with current school-awarded marks achieved the highest averages of all subgroups except in English 33, Français 30, and Mathematics 30.

**How does the performance of students with school marks brought forward compare with the results of students with current school-awarded marks?**

On the diploma examinations, regular students with school marks brought forward did as well as students with current school-awarded marks in English 30, Chemistry 30, and Physics 30, and did better than all subgroups in Mathematics 30. However, this group did not do as well as students with current school-awarded marks in English 33, Social Studies 30, and Biology 30.

Mature students with school-marks brought forward and regular students with no school marks obtained the lowest averages in diploma examination marks in all courses except for English 33. In English 33, regular students with no school-awarded marks achieved a higher average than students with current school-awarded marks.

**How does the performance of mature students challenging the examination compare with the performance of other mature student subgroups?**

Mature students challenging the diploma examination did better in all courses than mature students with school-awarded marks brought forward. However, they did not do as well as mature students with current school-awarded marks except in English 33, where mature students challenging the examination achieved the highest average of all subgroups.

**For subgroups with both school-awarded marks and diploma examination marks, how does the diploma examination mark average compare with the school-awarded mark average?**

All subgroups had higher averages in school-awarded marks than in diploma examination marks with the exception of English 33. In English 33, regular students with current school-awarded marks and regular students with school marks brought forward achieved higher averages in diploma examination marks than they did in school-awarded marks. For all courses, the largest difference between school-awarded marks and diploma examination marks was observed for mature students with school marks brought forward. For this subgroup, in all courses, the diploma examination average was more than 10% lower than the school-awarded mark average. In both Mathematics 30 and Biology 30, the difference between school-awarded and diploma examination averages was over 15% for this subgroup.

# SECTION 5
# SPECIAL STUDY: DIFFERENT PATHS TO SUCCESS IN DIPLOMA EXAMINATION COURSES

For most students, high school is a three-year program. They write all their examinations in their third year of high school and write each examination only once. A substantial number of students do not follow the traditional Grade 10-Grade 11-Grade 12 pattern, however. Some students, for example, take a diploma examination course more than once and some begin taking diploma examination courses in their second year of high school (Grade 11), intending to spread these courses over two or three years.

This special study takes a look at the types of time and repetition patterns among students writing diploma examinations, compares the numbers and achievement of the various groups, and establishes whether there are any trends in the numbers or groups of these students.

These questions will be answered:

- What percentage of students write all their diploma examinations in a single school year; what percentage of students write their examinations over more than one school year?
- Has there been an increase in the proportion of students taking four years of high school between the 1987-88 school year and the 1989-90 school year?
- What percentage of students in each course rewrite diploma examinations?
- Do students rewriting diploma examinations improve their marks?
- Does the percentage of students who rewrite examinations in each course differ in the January, June, and August sittings?
- In each course, what percentage of students who rewrite an examination also repeat the course?
- For students in each course who rewrite examinations, is there a relationship between the student's original examination mark and whether the student also repeats the course?
- For students in each course who rewrite examinations, what is the gain in achievement for those who also repeat the course and the gain for those who only rewrite the examination?

Examination results for the 1986-87 through 1990-91 school years for Alberta students with school-awarded marks were analysed; students without school marks (i.e., who did not participate in the school system) are left out. The study was limited to students who wrote at least one of their examinations in the 1987-88, 1988-89, or 1989-90 school years because it cannot yet be determined which students in the 1990-91 school year will write more examinations in the 1991-92 school year; complete information for students before the 1986-87 school year was not available.

## CLASSIFICATION OF STUDENTS

For this study, students are grouped on two dimensions: according to a "time pattern" – that is, by the point in their high school program at which they wrote diploma examinations – and according to the number of examinations they rewrote.

**Group 1** students are defined as those who wrote all their diploma examinations in a single school year. **Group 2** students are defined as those who wrote one or more examinations in the 1987-88, 1988-89, or 1989-90 school years; they wrote their examinations over more than one school year. Excluded from this group are those students who wrote their first diploma examination in their second year of high school; these students comprise **Group 3**. In a school using a semestered schedule, for example, a student could complete a 20-level course in the first semester and then take a 30-level diploma examination course in the second semester. It would also be possible for a student to take a 10-level course in the first semester of the first year of high school, the 20-level course in the series during the second semester of the first year, and the 30-level course in the first semester of the second year of high school. Information about the grade (10, 11, or 12) was not available for this study. Accordingly, Group 3 students are those who:

- wrote only one examination in their first year of writing examinations, and
- wrote two or more examinations in their second year, and
- wrote examinations in at least two different courses, and
- wrote all their examinations within a two-year span.

They are classified as students who wrote one diploma examination in their second year of high school. These students would have completed high school in three years, although they wrote examinations in two different years.

These three groups fall into two further classifications.

**Group A** students are defined as those who wrote each diploma examination only once. **Group B** students are those who rewrote one or more examination(s) in a particular course during the five-year span of the study, and at least one of these in any of the 1987-88, 1988-89, or 1989-90 school years.

Whenever possible, students were classified for analysis by their probable third year in high school (Grade 12). In Group 3 (Grade 11), the probable third year of high school is the *second* year in which they wrote diploma examinations. Only students whose third year of high school was in one of the 1987-88, 1988-89, or 1989-90 school years were included in the analyses.

## RESULTS

### What percentage of students write all their diploma examinations in a single school year; what percentage of students write their examinations over more than one school year?

### Table 5-1
### Time Pattern and Examination Repetition of Students Writing Diploma Examinations

| | | **Group 1** (Wrote Within One Yr.) | **Group 2** (Wrote Over More Than One Yr.) | **Group 3** (Wrote in 2nd Yr. of High School) | **Total** |
|---|---|---|---|---|---|
| **Group A Rewrote No Examinations** | Number of Students<br>Per Cent of Total | 56 548<br>59.9 | 7 681<br>8.1 | 8 785<br>9.3 | 73 014<br>77.3 |
| **Group B Rewrote One or More Examinations** | Number of Students<br>Per Cent of Total | 4 811<br>5.1 | 13 892<br>14.7 | 2 733<br>2.9 | 21 436<br>22.7 |
| **Total** | Number of Students<br>Per Cent of Total | 61 359<br>65.0 | 21 573<br>22.8 | 11 518<br>12.2 | 94 450<br>100.0 |

Not all students writing examinations over more than one year rewrite examinations, nor do all students rewriting examinations do so in more than one school year. Table 5-1 shows the categories of time pattern and examination repetition of students who started their 30-level courses in the 1987-88, 1988-89, or 1989-90 school years.

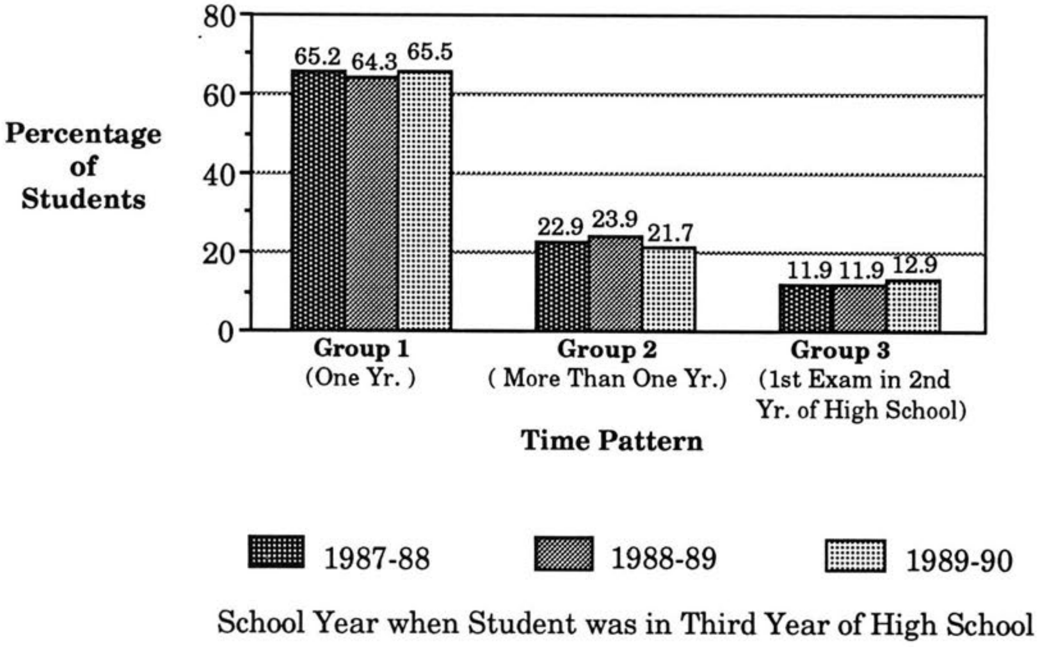
As Table 5-1 shows, most students (59.9%) wrote examinations in only one year and no more than one examination per course, but 22.7% of students rewrote examinations in one or more courses. Only 5.1% of students rewrote one or more examination(s) and wrote all their examinations in one year. Nearly one student in 12 (8.1%) rewrote no examinations yet wrote examinations in more than one year. These may be students who planned to spend four years in high school.

Of students writing examinations over more than one year (Group 2), 64.4% rewrite one or more examinations. Students who write one diploma examination in their second year of high school (Group 3) are more likely to rewrite examinations than students who write all their examinations in one year (Group 1): 23.7% versus 7.8% respectively. These Group 3 students, however, are far less likely to rewrite examinations than the Group 2 students.

### Has there been an increase in the proportion of students taking four years of high school between the 1987-88 school year and the 1989-90 school year?

Although most students complete all their diploma examinations in one year, many students write diploma examinations in more than one year. Figure 5-1 shows that the percentage of students following different time patterns remained much the same for the three years of the study. Slightly more than one in five students wrote examinations in more than one year, if the students who wrote one examination in their second year are considered a separate group. More than one in ten students wrote only one examination in the first year they started writing diploma examinations and wrote the remainder in the following year. Nearly two out of three wrote all their examinations in a single year.

**Figure 5-1**
**Diploma Examination Time Pattern of Students in Their Third Year of High School**

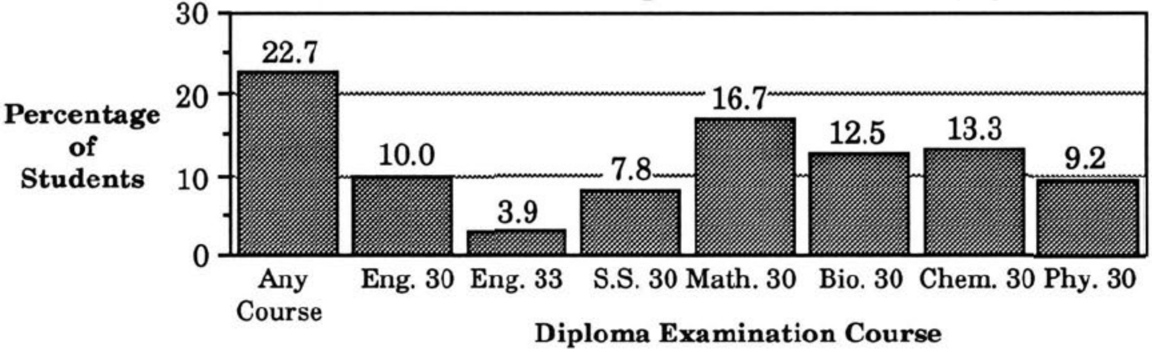


**What percentage of students in each course rewrite diploma examinations?**

Figure 5-2 shows the percentage of students who rewrote the diploma examination in each course. Only those who wrote at least one examination in the school year 1987-88, 1988-89, or 1989-90 are included.

About one in six Mathematics 30 students wrote the examination more than once, compared with the fewer than one in twenty-five English 33 students who wrote more than once. More than one-fifth of students rewrote examinations in at least one course.

**Figure 5-2**
**Students Who Rewrote Diploma Examinations, by Course**

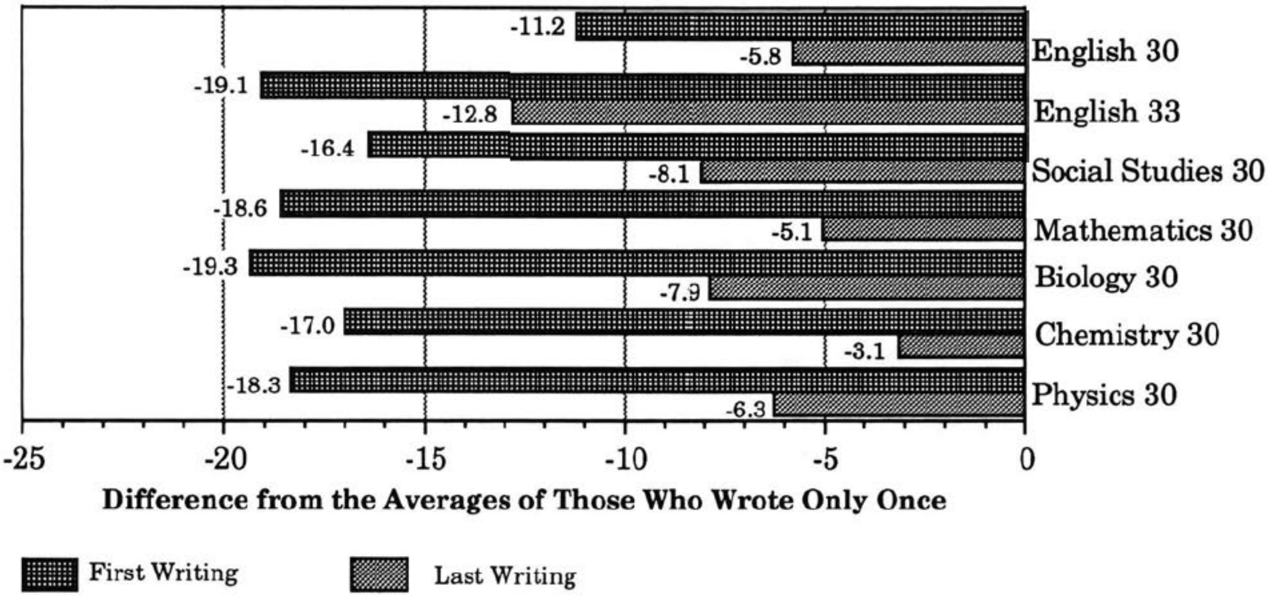


**Do students rewriting diploma examinations improve their marks?**

Since most students rewrite an examination because of an unsatisfactory mark, it is no surprise that the average examination score for these students is lower than for those who do not rewrite. Figure 5-3 gives the differences in average examination scores between those who rewrite and those who do not. The upper bar for each course shows the difference for the first writing; the lower bar for the last writing. Few students rewrote more than once. For example, in English 30, the average examination mark on the first writing for those students who went on to rewrite the examination was 11.2% below the average of those students who wrote the examination only once. The average examination mark for the last time students rewrote the examination was 5.8% below the average score of students who wrote only once.

Improvements in marks are largest in Mathematics 30 and the sciences, and least in English 30 and English 33. Students who rewrote remained below the average of students writing only once.

**Figure 5-3**
**Average Achievement on Diploma Examinations of Students Who Rewrote Examinations**

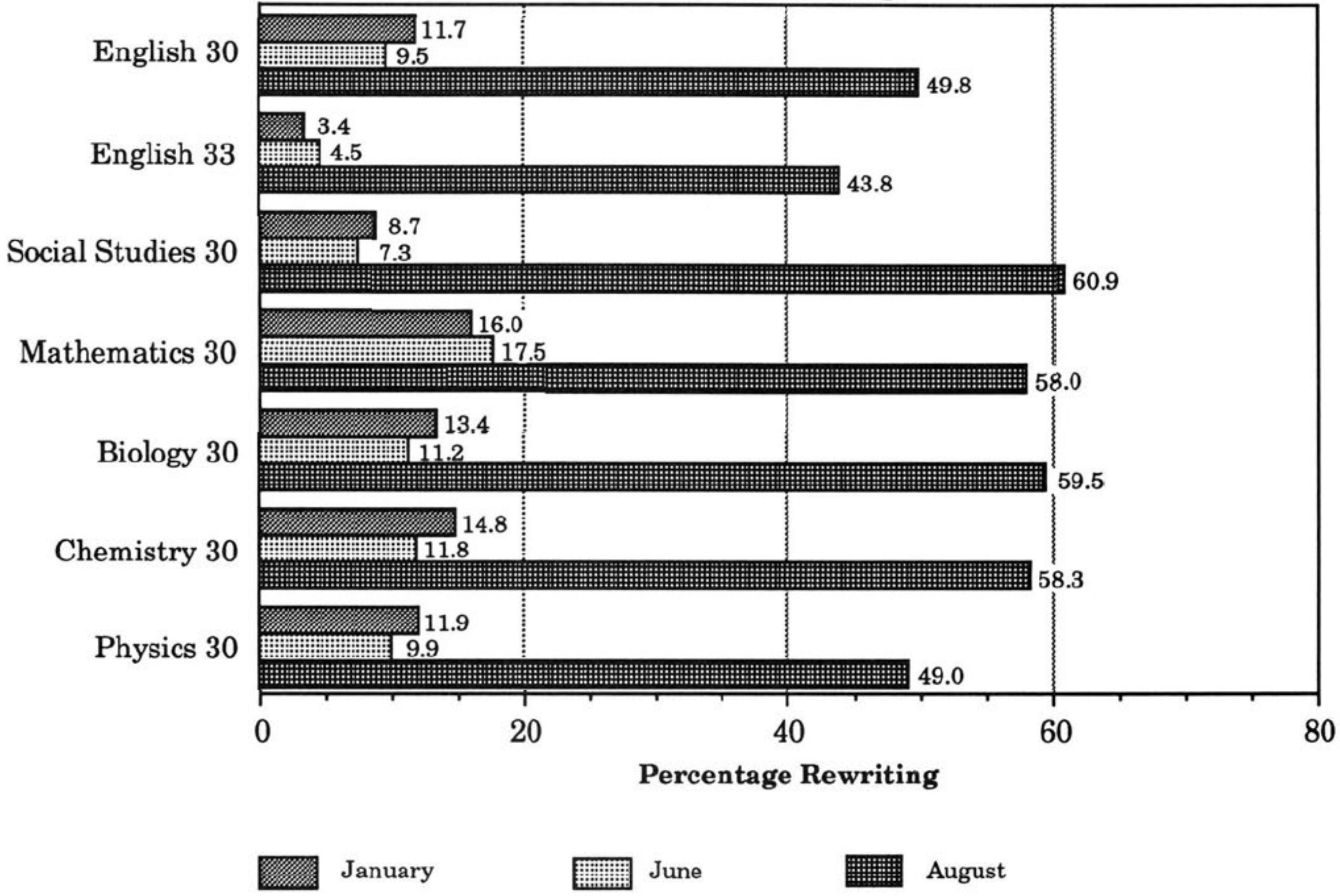


### Does the percentage of students who rewrite examinations in each course differ in the January, June, and August sittings?

Figure 5-4 shows that in all courses, a higher percentage of students writing examinations in the August sitting were rewriting the examination compared with the percentage of students rewriting in the January or June sittings. In all courses except Mathematics 30 and English 33, a higher percentage of students rewriting the examination wrote in January than in June, but differences between January and June are not large.

Figure 5-3 showed that students rewriting examinations on the average receive lower marks than other students. If these students are disproportionately represented in a particular sitting of the diploma examinations, the average mark for that sitting would likely be lower than for other sittings even though the examinations may be of equal difficulty, as they are designed to be.

Figure 5-4
Students Rewriting Diploma Examinations in Each Sitting

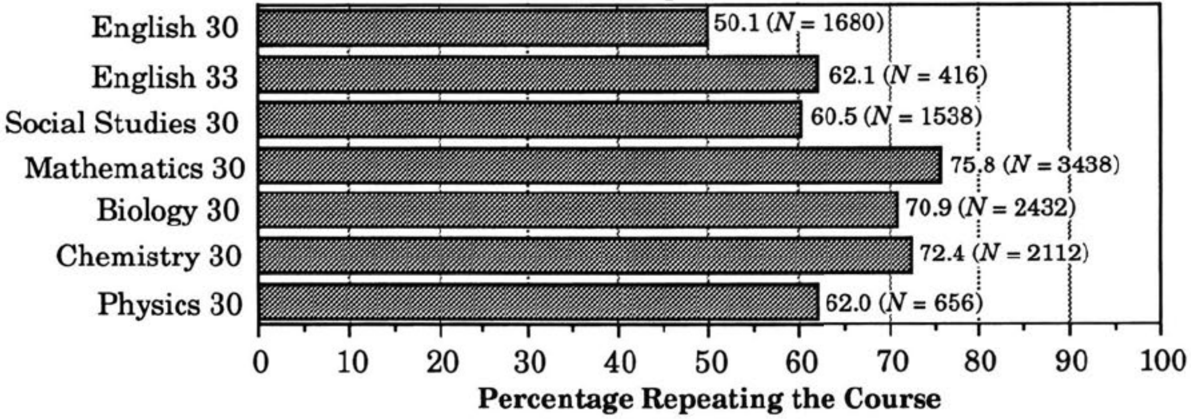


**In each course, what percentage of students who rewrite an examination also repeat the course?**

The analysis so far has dealt with students rewriting examinations, disregarding whether they also repeated the course. Figure 5-5 distinguishes between students who rewrote the examination and repeated the course, and those who only rewrote the examination. The students referred to in Figure 5-5 are only those who did not have mature status, as it was not possible to determine from the available data whether students with mature status had repeated the course as well as rewritten the examination. Also excluded from Figure 5-5 are students who rewrote examinations in a course more than once. Including multiple repetitions would have added numerous additional possible sequences of course and examination repetitions that are of limited interest. More than nine out of ten students who rewrote the examination did so only once.

Figure 5-5 shows that in all courses, most students received further instruction but many rewrote only the examination. Mathematics 30 students were most likely to repeat the course and to rewrite the examination, with three out of four receiving a new school mark; English 30 students were least likely, with only slightly more than half receiving a new school mark.

**Figure 5-5**
**Percentage of Students Rewriting Diploma Examinations Who Also Repeated the Course**

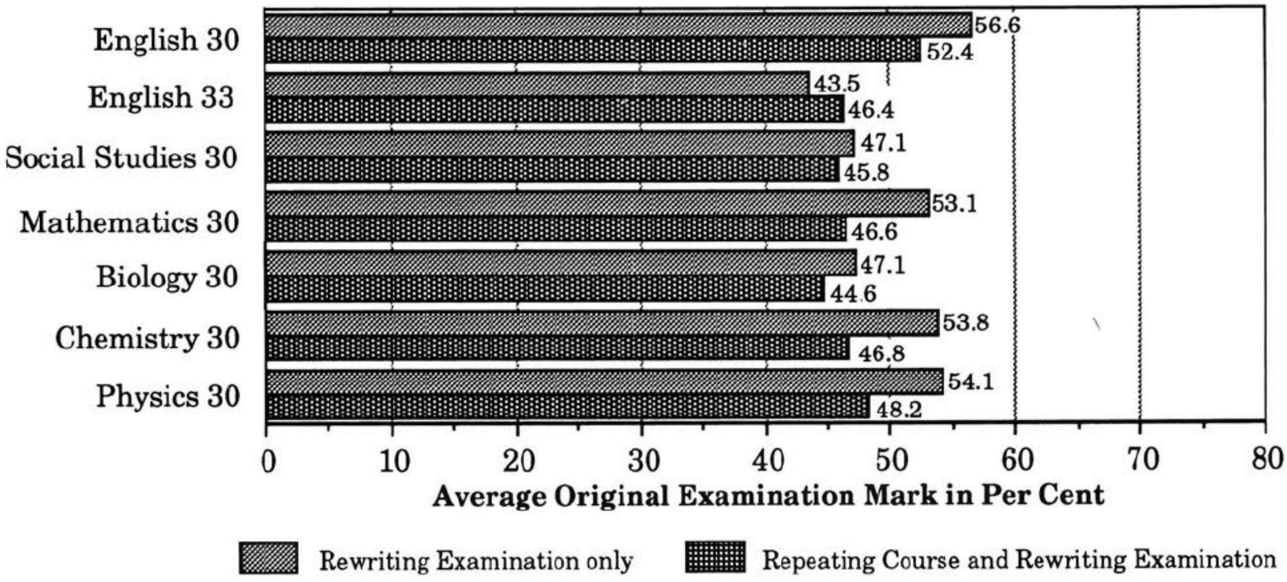


**For students in each course who rewrite examinations, is there a relationship between the student's original examination mark and whether the student also repeats the course?**

Before comparing the change in examination marks of the two groups (course-and-examination or examination-only), the original examination marks for the groups must be compared. Other analyses showed that the amount of change in mark between the first and the last writing depended on the original mark: the higher the original mark, the less the average change. Figure 5-6 shows that the differences in original marks between the groups is not large.

In all cases except for English 33, students who rewrote the examination without repeating the course had a higher initial average examination mark than students who later both repeated the course and rewrote the examination. A somewhat smaller increase in mark from the initial examination mark can be expected because of this slightly higher original mark.

**Figure 5-6**
**Original Diploma Examination Mark Averages of Students Rewriting the Examination Only and of Students Repeating the Course and Rewriting the Examination**

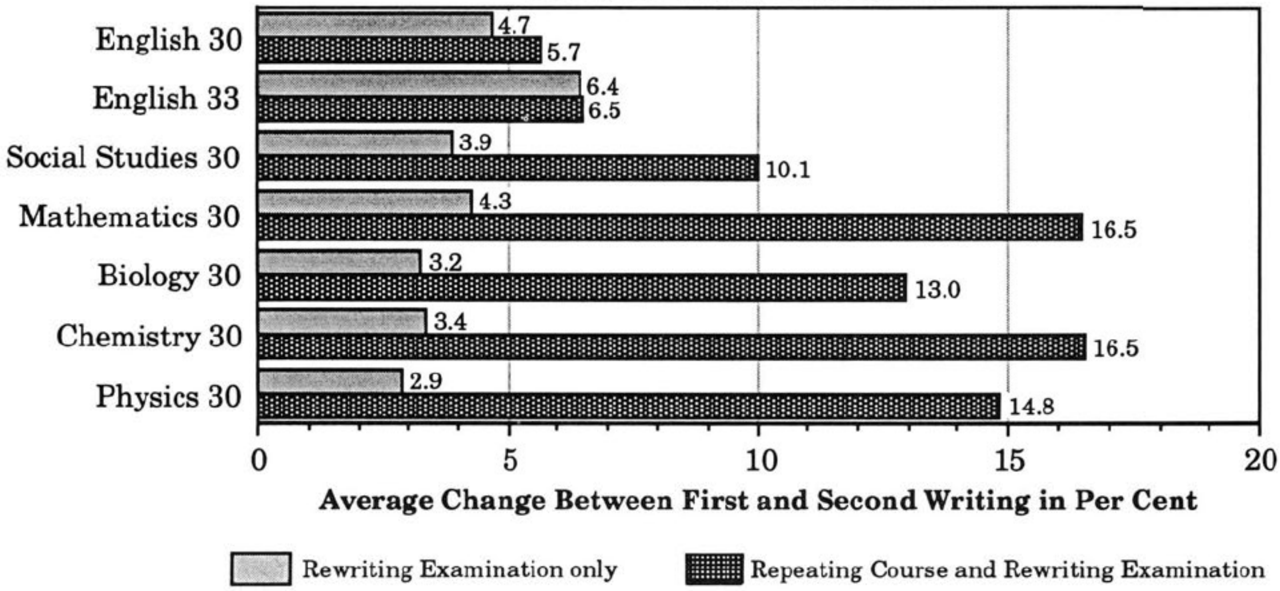


**For students in each course who rewrite examinations, what is the gain in achievement for those who also repeat the course and for those who only rewrite the examination?**

It would be expected that repeating the course would better prepare a student for rewriting the examination. Figure 5-7 shows the average change in mark in each course for the two groups.

The effect of retaking the course on the change in examination mark was very small in both English courses but was substantial in all other courses.

**Figure 5-7**
**Effect of Repeating the Course on Change in Diploma Examination Mark**



## SUMMARY

- Most students, 59.9%, wrote all their examinations in one year and rewrote no examinations. Students writing examinations over more than one year typically rewrote one or more examinations, while fewer than one in ten single-year students rewrote.

- The proportion of 4-year students remained steady from the 1987-88 school year (22.9%) to the 1989-90 school year (21.7%).

- More than one in five students rewrote one or more examination(s); Mathematics 30, Chemistry 30, and Biology 30 were the examinations most often rewritten.

- Students rewriting examinations generally improved their marks; the average improvement was greatest in Mathematics 30 and Chemistry 30 and least in the English courses.

- Students who rewrote examinations formed a slightly greater percentage of the group at the January sitting than at the June sitting, except in English 33 and Mathematics 30; however, this percentage was by far the largest at the August sitting.

- Students rewriting examinations usually repeated the course as well. The effect of retaking the course on the change in examination mark was very small in both English courses but was substantial in all other courses.

## CONCLUSION

The perception that there has been a steady increase in the proportion of students taking four or more years to complete high school has not been borne out by this study; however, the number of students doing so is substantial. The fact that one in twelve students is taking four or more years to complete high school *without repeating any diploma examination courses* shows that a significant number of students may be unable to complete the high school program they want in three years.

The very small improvement in examination marks achieved by students who repeated the English courses suggests that language skills must be developed over a long period of time and are not as readily influenced by a year's instruction as in other courses. It could be that students repeating English courses require a different type of instruction, whereas in other courses greater time and effort with the same type of instruction produces improved results.

# SECTION 6
# ACHIEVEMENT-OVER-TIME STUDIES

An important goal of Alberta Education is to measure and report changes in student achievement over time. This year, a number of different methods were used to address one or both of the following questions:

- Has achievement as measured by the multiple-choice component of diploma examinations changed over the past few years?
- Has achievement as measured by the written-response component of diploma examinations changed over the past few years?

Since 1989, an anchor test study has been carried out in English 30, English 33, and Social Studies 30. In each course, the same anchor test was administered in June of each year to students who would be writing the upcoming diploma examination. Anchor tests were also administered in June of 1990 and 1991 in Biology 30 and Chemistry 30. These anchor tests were used to compare achievement on the multiple-choice component of the examinations.

As well, qualitative studies in English 30, English 33, and Social Studies 30 were carried out to compare achievement on the written-response component of the 1991 examinations with previous achievement.

In Biology 30, the same set of diploma examination questions was given in August of 1988, 1989, and 1991, thereby allowing comparison of achievement over time. Qualitative comparisons of achievement were also made in Mathematics 30, Chemistry 30, and Physics 30.

The results of these special studies follow.

## ANCHOR TEST STUDY

Comparing achievement in two or more student groups of unknown ability requires some common measure. Because new examinations are developed each year, it is not possible to make direct comparisons of achievement from one year to the next. What is required, therefore, is a set of common questions specific to each diploma examination course that can be administered yearly to a sample of students who are registered to write the diploma examination.

In 1989, multiple-choice anchor tests were developed for English 30, English 33, and Social Studies 30. They were designed to be parallel to the multiple-choice component of these diploma examinations. Similarily, in 1990 anchor tests were developed for Biology 30 and Chemistry 30.

Approximately two weeks before the administration of the diploma examinations, anchor tests were administered to a sample of students. These anchor tests were kept secure and administered again in the subsequent year(s). Following the administration and scoring of the diploma examinations, the anchor test marks of the students in the samples were matched with their corresponding multiple-choice marks on the diploma examination. Only regular students (i.e., nonmature students with current school-awarded and diploma examination marks) were used in the samples.

Table 6.1 presents the number of students in the samples.

## Table 6-1
## Number of Students Writing the Anchor Tests

| Course | Year<br>June 1989 | June 1990 | June 1991 |
|---|---|---|---|
| English 30 | 360 | 319 | 297 |
| English 33 | 264 | 298 | 249 |
| Social Studies 30 | 634 | 464 | 303 |
| Biology 30 | — | 405 | 286 |
| Chemistry 30 | — | 160 | 291 |

A common method of comparing achievement over time on different tests is to delineate a baseline time period and then express later scores in terms of that baseline. For this study, the baseline time period chosen for English 30, English 33, and Social Studies 30 was June 1989. For Biology 30 and Chemistry 30, the baseline period chosen was June 1990.

Based on the sample results, using a statistical procedure called linear equating, a formula was derived and then applied to the results of all regular students who wrote the diploma examination in each course under study. The equating procedure allows for the expression of scores of students as if the students had written the baseline examination. That is, by applying the formula derived for English 30, for example, to the mark of a student who wrote the June 1991 English 30 Diploma Examination, it is possible to estimate the mark the student would have received if that student had written the June 1989 English 30 Diploma Examination.

Through the use of formulas based on the results from the students who wrote the anchor tests, estimates were made of the 1989 multiple-choice scores for students who wrote the corresponding English 30, English 33, and Social Studies 30 diploma examinations in 1990 and 1991. Similar estimates were made of the June 1990 multiple-choice scores for students who wrote the corresponding June 1991 Biology 30 and Chemistry 30 diploma examinations. Table 6-2 shows the results of these analyses.

## Table 6-2
## Average Raw Score on the Multiple-Choice Component of the Baseline Diploma Examinations

| Course | June 1989* (Actual Mean) | June 1990* (Actual Mean) | June 1990 (Estimated 1989 Mean) | June 1991 (Estimated 1989 Mean) | June 1991 (Estimated 1990 Mean) |
|---|---|---|---|---|---|
| English 30 (80 items) | 55.3 | — | 54.6 | 54.7 | — |
| English 33 (69 items) | 43.2 | — | 43.7 | 43.1 | — |
| Social Studies 30 (70 items) | 45.5 | — | 45.9 | 47.3 | — |
| Biology 30 (70 items) | — | 46.5 | — | — | 45.9 |
| Chemistry 30 (49 items) | — | 33.1 | — | — | 32.3 |

*Baseline Year

In Table 6.2, for English 30, English 33, and Social Studies 30, the numbers shown for 1989, the baseline year, are the actual means achieved by regular students that year. For Biology 30 and Chemistry 30, the numbers shown for 1990, the baseline year, are the actual means achieved by regular students that year. The means reported for the other years are based on equated scores. For example, Table 6.2 shows that if English 30 students in June 1990 had written the June 1989 English 30 Diploma Examination, the estimated mean number of correctly answered multiple-choice questions would have been 54.6 out of 80.

An examination of data presented in Table 6.2 reveals that achievement in English 30 and English 33 has not changed substantially since 1989. However, there does appear to be a change in achievement in Social Studies 30. It is estimated that 1991 students would, on average, have been able to answer approximately two more questions than the 1989 students if they had written the 1989 Social Studies 30 Diploma Examination. It is difficult to confidently identify a trend in achievement with only three years of data; however, the increase in achievement observed on the multiple-choice component of the Social Studies 30 examination may be a reflection of students' improved ability to grapple with critical thinking skills. This improvement in ability may be due, in measure, to an increased instructional focus on skill development in the classroom. It will be interesting to see if data from future years will support this finding. As there are only two years of data for Biology 30 and Chemistry 30, the data are offered without interpretation.

The collection of data has begun in Mathematics 30 and Physics 30 but this process is not complete, and therefore analyses based upon anchor tests are not yet available.

In summary, it appears that achievement measured by the multiple-choice component of the diploma examinations has remained stable for English 30 and English 33, and that there is an upward trend in achievement for Social Studies 30. Data from future years are necessary before comment can be made about changes in achievement in Mathematics 30, Biology 30, Chemistry 30, and Physics 30. The next section discusses changes in achievement on the written-response components of three diploma examinations.

## HUMANITIES STUDY – WRITTEN RESPONSE

In July 1991, the Humanities Diploma Examinations Unit conducted its third series of achievement-over-time studies that focused on written response. The first series of studies was conducted in July 1987, and the second series, employing the methodology used again in 1991, was conducted in July 1990. The procedures used during the 1990 studies, and the results found, were reported in *Patterns and Processes: Approaches to Writing by Grade 12 Students* (Alberta Education, 1991).

In July 1991, three groups of ten teacher-readers led by Student Evaluation Branch staff studied student written responses on three diploma examinations: English 30, Social Studies 30, and English 33. Three key indicators of writing quality – thoughtfulness, effectiveness, and correctness – were studied. Comparisons were as follows:

- English 30: Major Assignment, June 1989 and June 1991
- Social Studies 30: Argumentative Essay, June 1987 and June 1991
- English 33: Functional Writing, June 1984 and June 1991

The years 1989, 1987, and 1984 respectively were chosen as a means of controlling, as much as possible, differences in the assignment from year to year. The first year that the major assignment on the English 30 Diploma Examination asked students to consider authors' ideas rather than authors' techniques was 1989. The first year that the writing assignment on the Social Studies 30 Diploma Examination did not require students to write about the Canadian context was 1987. And the functional writing assignment on the English 33 Diploma Examination in June 1984, which was a letter of application for a job, was essentially the same as the functional writing assignment in June 1991.

Comparisons were made at two standards: *Satisfactory* (3), which represents work at an acceptable level for students seeking graduation after 12 years of schooling, and *Excellent* (5), which represents outstanding work for graduating students.

The general design and specific procedures used in the July 1991 study were the same as those used in July 1990; see *Patterns and Processes: Approaches to Writing by Grade 12 Students* (pages 9 to 12) for a full description.

## RESULTS AND CONCLUSIONS

### ENGLISH 30

At the *Satisfactory* (3) level, the June 1989 papers were characterized by a personal involvement in the task that stimulated reader interest. The June 1991 *Satisfactory* (3) papers showed clearer evidence of focus but lacked the same degree of writer or reader engagement. The sample of *Satisfactory* (3) papers studied from June 1989 showed more variability (i.e., the weak papers were weaker and the strong papers were stronger) than the sample of *Satisfactory* (3) papers studied from June 1991, but on average there was little to differentiate the two samples at this level.

At the *Excellent* (5) level, however, a dramatic increase in achievement in the areas of thoughtfulness and effectiveness took place between June 1989 and June 1991. The sample of *Excellent* (5) papers studied from June 1991 illustrated a remarkable sophistication and confidence in both content and style. The sample of *Excellent* (5) papers studied from June 1989 were merely methodical and conscientious by comparison. The June 1991 papers appeared to have been as much a pleasure to write as they were to read.

### SOCIAL STUDIES 30

The *Satisfactory* (3) papers reviewed from June 1991 demonstrated improvement over the *Satisfactory* (3) papers reviewed from June 1987. Improvements were noted, as well, in the papers scored *Excellent* (5). At both levels, however, the nature of the improvement was qualified. While improvements were seen in the argumentative nature of the papers, recurring characteristics and patterns of approach that revealed common features of writing at each of these two levels of performance from both samples, June 1991 and June 1987, were identified.

The expectations embedded in the scoring criteria have increased to some extent since 1987. (See the *Social Studies 30 Diploma Examinations Program Information Bulletin* for 1990-91.) Teacher-readers agreed that papers judged to be satisfactory in June 1987 would, in some instances, have received a *Limited* (2) rating in June 1991 for the scoring categories requiring students to define the dimensions of the issue and to defend their position. Papers awarded *Excellent* (5) in 1987 would likely have received the same rating in June 1991, even though improvement was also noted at this level.

### ENGLISH 33

The *Satisfactory* (3) level papers studied from June 1991 demonstrated an increased student awareness of audience and use of appropriate tone when compared with *Satisfactory* (3) papers studied from June 1984. The June 1984 papers tended to be more personal than businesslike in tone, suggesting that students were uncertain of, or uncomfortable with, expectations inherent in a letter of application. By comparison, the tone of the *Satisfactory* (3) papers studied from June 1991 was appropriate for the audience (businesslike, serious, and formal). An improvement in organization at this level was also noted by the teacher-readers.

At the *Excellent* (5) level, substantial improvement in thoughtfulness and effectiveness could be detected. The June 1991 papers illustrated a mature and confident tone and purpose. The June 1984 papers, by comparison, were less sophisticated in tone, purpose, and quality of information.

## DISCUSSION

It is important to note that common student approaches to writing at the *Satisfactory* (3) level and the *Excellent* (5) level, and patterns of thought or "states of mind" at each level that were observed during the July 1990 achievement-over-time studies and subsequently reported in *Patterns and Processes: Approaches to Writing by Grade 12 Students* (pages 22 to 25), were also observed during the present studies. For example, the lack of "ownership" of ideas that was observed during the 1990 studies at the *Satisfactory* (3) level was also observed in 1991. Similarly, students performing at the *Excellent* (5) level in 1991 expressed themselves clearly and thoughtfully in their own voices, valued their own ideas, and had confidence in the worth of those ideas, as did students achieving at the same level in 1990.

It is also important to note that the most significant improvements observed during the studies conducted in July 1991 were the same as the most significant improvements observed in July 1990. These improvements were at the *Satisfactory* (3) level in Social Studies 30 and at the *Excellent* (5) level in English 30.

Several factors may be contributing to the improvement in student writing that has been observed in English 30, Social Studies 30, and English 33. Teaching practices may have changed. Eight years of provincial diploma examinations have provided many direct and indirect benefits to English and social studies teachers as they have become involved in examination development, in field testing, in inservice opportunities related to student writing, and in the actual marking of written-response sections of diploma examinations. The exchange of ideas and information among teachers has helped many in their instructional planning and in their work with students. Social studies teachers, for example, have commented on the growing fluency of student writing. This they attribute to increasing classroom practice in writing.

Student motivation is also a powerful factor. Increasing and continued pressures for higher marks from postsecondary institutions and employers may have encouraged some students to apply themselves with added vigor. The fact that a substantial number of students repeat courses during a fourth year of high school in order to raise their marks also suggests that some students are increasingly motivated to do well. As a result, many students may be both better prepared and more serious in their approach to their studies and to the diploma examinations.

Finally, the change in students' performance in June 1991, particularly in Social Studies 30, may have been reinforced by the strong relevance of the issues and ideas that emerge from the *Program of Studies*. The powerful impact of media coverage of such momentus events as the Gulf War, the changing face of Eastern Europe, or the constitutional debates in Canada allowed and encouraged students to draw on a wealth of further information in developing effective evidence for their compositions. Recent events receiving wide media attention provincially, nationally, and internationally have helped to broaden a climate that engages many student writers in exploring meaningful issues and ideas and in reflecting more thoughtfully on the assignment and on their own feelings and opinions.

It seems clear that excellence in classroom instruction has led more students to develop their abilities to express worthwhile ideas in clearly and correctly written prose.

## MATHEMATICS/SCIENCES STUDY – MULTIPLE CHOICE AND WRITTEN RESPONSE

The diploma examinations for Mathematics 30, Biology 30, Chemistry 30, and Physics 30 have undergone two important changes in structure during the past three school years – 1988-89, 1989-90, 1990-91. First, the proportion of each examination that is devoted to student-created responses (written response and numerical response) in contrast to student-selected responses (multiple choice) has increased. Secondly, the proportion of questions that require thinking skills that go beyond the simple recall of information has increased.

The course-specific descriptions that follow for Mathematics 30, Chemistry 30, and Physics 30 are based on general observations of achievement over time shared by head markers and examination managers. For Biology 30, select groups of comparable students have within the past several years written identical sets of multiple-choice questions under diploma examination administration conditions, allowing for comparison of achievement over these years. The observations for each course are presented below.

## MATHEMATICS 30

Several important changes to the design of the Mathematics 30 Diploma Examination have been made since 1984. These design changes are one factor to consider when student achievement over time is reviewed.

The proportion of questions requiring student-constructed responses has been increased from 30% to 40%. This is an important change because for these questions, students must prepare their responses rather than "verify" responses as they do for multiple-choice questions. Twelve of the multiple-choice questions have been replaced by numerical-response questions, which require students to calculate their responses. As well, the number of written-response questions has been reduced from five questions (each worth 2 or 3 marks) to three questions (each worth 4 or 5 marks). These changes in examination design reflect a move away from assessing the recall of concepts and procedures to assessing problem-solving skills.

It appears that students who meet the *acceptable standard* continue to have little difficulty recalling facts, concepts, and definitions and solving one-step problems such as first-degree trigonometric equations. However, as in the past, only those students who meet the *standard of excellence* are able to transfer their knowledge and thereby solve quadratic equations using trigonometry. Student achievement in quadratic relations has improved, particularly among those not meeting the *acceptable standard*. On a question requiring students to determine the centre and radius of a circle from an equation, for example, nearly half the students who did not meet the *acceptable standard* in 1991 were able to identify the correct response. This compares with the 1986 figure of 37%.

Students have difficulty relating one concept to another or applying concepts in unfamiliar situations. One example that shows this difficulty is determining the limit of an infinite sequence. Achievement in this area increased steadily during the first three years of administration (1984-86). In the fourth year, the same question was written in a slightly different manner, and achievement dropped significantly, especially for those students who did not meet the *acceptable standard* and for those students who met the *acceptable standard* but not the *standard of excellence*. In the fifth and sixth years of administration, students were asked to extend this understanding of the concept of a limit. Once again, those students who did not meet the *standard of excellence* had difficulty going beyond the surface meaning to identify the correct response.

As the examination moves to evaluating an understanding of mathematic concepts, students are having more difficulty. The understanding of mathematical concepts must be demonstrated in a number of ways, and students must be able to show this in order to be successful on the diploma examination. When the written-response portion changed to three questions, each worth 4 or 5 marks, students were required to solve multistep questions and problems. In order to answer these questions, students had to apply their knowledge in unfamiliar situations. They were required to identify all the necessary steps, to know what procedure to use in each step, to sort out extraneous information and, finally, to put the pieces together for a solution.

As the curriculum further focuses on understanding of mathematical concepts, those students who see Mathematics 30 as a "collection" of skills and procedures will continue to have difficulty. Those students who view mathematics as a series of interconnected and interrelated concepts will be successful.

## BIOLOGY 30

Similar Biology 30 diploma examinations were written in August of 1988, 1989, and 1991. Common to these examinations was a set of 67 multiple-choice questions that assessed student achievement on the 10 major concepts. Comparisons of achievement among the three years were made. Mature students and students who had previously written a Biology 30 Diploma Examination were excluded from the study. A summary of the data is given in Table 6-3.

**Table 6-3**
**Comparison of Biology 30 Achievement**
**Based on 67 Multiple-Choice Questions Administered**
**in August of 1988, 1989, and 1991**

| Population | Number of Students | Average % | % Achieving 50% or Higher | % Achieving 80% or Higher |
|---|---|---|---|---|
| 1988 | 139 | 67.6 | 79.9 | 30.9 |
| 1989 | 123 | 68.7 | 82.9 | 28.5 |
| 1991 | 130 | 67.2 | 74.6 | 29.2 |

Even though there were no meaningful differences in the means for the three years, fewer students in 1991 achieved 50% or greater. The small number of students in this study and the characteristics of students writing during the August sitting do not allow us to conclude that this single deviation from the pattern constitutes a real change in achievement. We therefore conclude that there has not been a significant change in student achievement over the past four school years for those non-mature students who chose to write the Biology 30 examination for the first time during the August sitting. However, focusing on overall improvement in achievement may mask improvements in specific student understandings and skills. Experienced diploma examination markers have observed improvement in students' communication skills, both in textual and graphical formats. Most students present their written-response answers in complete sentences rather than in abbreviated point form. Graphs are constructed according to established principles.

## CHEMISTRY 30

Students taking Chemistry 30 continue to meet expectations and do well; thus, very little change in overall achievement has been noted over the last three years. However, there were changes in several specific areas. The most important general change noted was the marked decrease in the number of students not attempting one or more numerical response questions: from approximately 10% in 1990 to 1% in 1991. This decrease in the number of "no responses" has resulted in an improvement in student scores in the numerical-response section of the examinations. Another improvement noted was in the general quality and quantity of student responses in the written-response section. More students are attempting written-response questions.

Several content-related changes were noted when equivalent questions from diploma examinations over the past three years were analysed. First, students' understanding of pH and indicators has improved. Second, students appear better able to identify net ionic equation for acid-base neutralizations. Finally, students are better able to integrate concepts from more than one core concept area. These improvements appear to reflect an increased ability on the part of students to apply their learning to different situations.

Not all changes noted were improvements, however. Student ability to recall operational definitions and apply them to a variety of situations decreased, suggesting that the amount of time allotted to covering properties of substances or the method of covering this topic should be examined.

## PHYSICS 30

At this time, sufficient data are not available to indicate whether or not there has been a significant improvement in overall performance. However, some comments can be made about improvements observed in specific areas. Students continue to do well on the multiple-choice section of the examinations. In the written-response section, a decrease in the number of students who did not respond has been observed. This indicates that students are more willing to attempt open-ended written-response questions.

The results from a number of questions on the 1991 diploma examinations were compared with those from equivalent questions that appeared on previous examinations. These questions were judged to be equivalent in terms of the required task for the written-response questions or equivalent in terms of both the concept being tested and the stem and its alternatives in a multiple-choice format.

Students have shown a marked increase in their ability to solve problems involving routine calculations. They perform well on problems requiring single-step or two-step calculations but continue to have major difficulties using ratios. A second area in which students show improvement is the recognition and identification of electric fields associated with point charges, as well as in the understanding of Coulomb's inverse square law governing the magnitude of these electric fields. Students are still somewhat confused between electric forces and electric fields. A notable improvement was observed in problems requiring the use of graphical analysis. Students are better able to present data graphically and to find the slope of such graphs. They are now carrying out more complex analyses requiring the use of the slope and intercepts. Continued instructional emphasis is required in the area of curve-straightening.

# SECTION 7
# EXAMINERS' ANNUAL SUMMARY STATEMENTS

This section of the report describes for educators how well students met performance standards in the eight diploma examination courses. Each examiners' summary statement addresses four questions:

- What are the characteristics of the student population that wrote the examinations?
- What is the overall performance of students on the examination?
- Do the population and performance data reveal any significant trends?
- How does the overall performance of students relate to the achievement of standards?

Please note that consistent with most of the data presented thus far, the data in this section of the report are based only on the results of students who had both diploma examination and school-awarded marks.

## ENGLISH 30

### STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

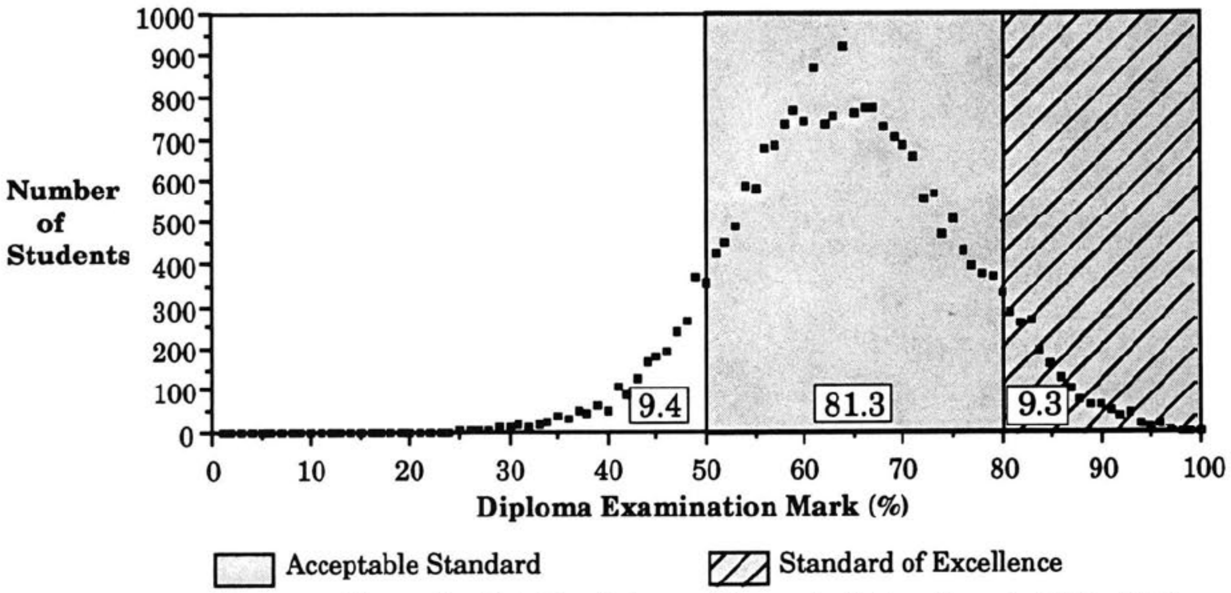
During the 1990-91 school year, 73% of students who wrote a diploma examination in English wrote English 30. This proportion of the total population has remained relatively constant over the last three school years. English 30 is a course "appropriate for students intending to pursue further academic studies" (*Senior High School Language Arts 1982 Curriculum Guide*, page 6). It therefore appears that a large proportion of students expecting to graduate are attempting to keep their options open with regard to future academic study by enrolling in English 30.

### OVERALL PERFORMANCE

The overall performance of students writing the English 30 diploma examinations during the 1990-91 school year was satisfactory and was similar to performance in previous years, even though a slightly smaller proportion of students achieved final blended marks at or above the *standard of excellence*. This consistency of performance is supported by the achievement-over-time studies that have been conducted over the past three years (see Section 6).

In 1990-91, 90.6% of the students writing English 30 attained diploma examination marks at or above the *acceptable standard* – this is a significant proportion – and 9.3% attained diploma examination marks at or above the *standard of excellence* (see Figure 7-1). Although 9.4% did not meet the *acceptable standard*, most of these students (7.8% of all students) attained marks ranging from 40% to 49%. These students may be able to achieve the *acceptable standard* on future examinations in English 30 if they receive further instruction to improve their knowledge and skills.

**Figure 7-1**
**Distribution of English 30 Diploma Examination Marks**
**1990-91 School Year**



The acceptable standard is 50% or higher. The standard of excellence is 80% to 100%.

## ACHIEVEMENT OF STANDARDS

### *Acceptable Standard*

Students who achieved the *acceptable standard* were able to understand the one reading selection presented in Part A: Written Response and to respond appropriately by relating details from the selection to their own experiences when writing their response to the Minor Assignment.

In responding to the Major Assignment, students achieving the *acceptable standard* presented a clear controlling idea that reflected a basic understanding of the chosen literary work but not always an understanding of the author's purpose or of the wider implications of the literature. That is, students readily located a character or characters who illustrated a quality suggested by the topic, but they usually did not explore what the author was saying through that character. Students achieving the *acceptable standard* organized their writing in a mechanical or functional way, giving clear direction to the reader. Occasionally, however, these students simply recounted parts of the story. Students writing at the *acceptable* level usually used language in a correct, practical way to "get the job done" rather than to enhance the details they were communicating or to illustrate ideas for the reader.

As in the past, students at this level continue to demonstrate awareness of control of stylistic choices and the conventions of written language. Many of their sentences reveal flaws such as faulty parallelism and incorrect grammatical agreement between subject and verb or pronoun and antecedent. Other sentences, however, are error free and stylistically effective. The fact that these students can and do produce some well-written sentences suggests that they are at the edge of awareness, and therefore control, of written language. Such students are ripe for instruction.

In responding to Part B: Reading, students who achieved the *acceptable standard* demonstrated that they were generally capable of effective close reading and of understanding difficult material, especially non-fiction. These students were often unsuccessful, however, at vocabulary questions requiring closer examination and re-reading of the passage.

*Standard of Excellence*

Students who achieved the *standard of excellence* on Part A: Written Response produced writing that displayed confidence in ideas, organization, and choice of language. Writing at this level reflected a sensitivity to the emotional tone of the reading selection and also reflected an appreciation of the importance of lively, concrete detail in personal responses. Often, there was a mature understanding of the significance of the topic in the greater scope of human endeavor.

In responding to the Major Assignment, students at this level of achievement demonstrated a perceptive understanding of literature. They were able to use the topic as a springboard to a focused, engaging, thorough examination of a chosen work of literature. Students who achieved the *standard of excellence* were confident in their ideas and opinions and in their ability to use language effectively to enhance their expression.

In responding to Part B: Reading, students achieving the *standard of excellence* demonstrated that they had highly developed skill in close reading. These students also achieved noticeably higher scores on questions requiring competence in vocabulary. Students at this level were successful at reading critically and responding precisely to complex literary works such as Shakespearean drama and poetry dense with image.

## ENGLISH 33

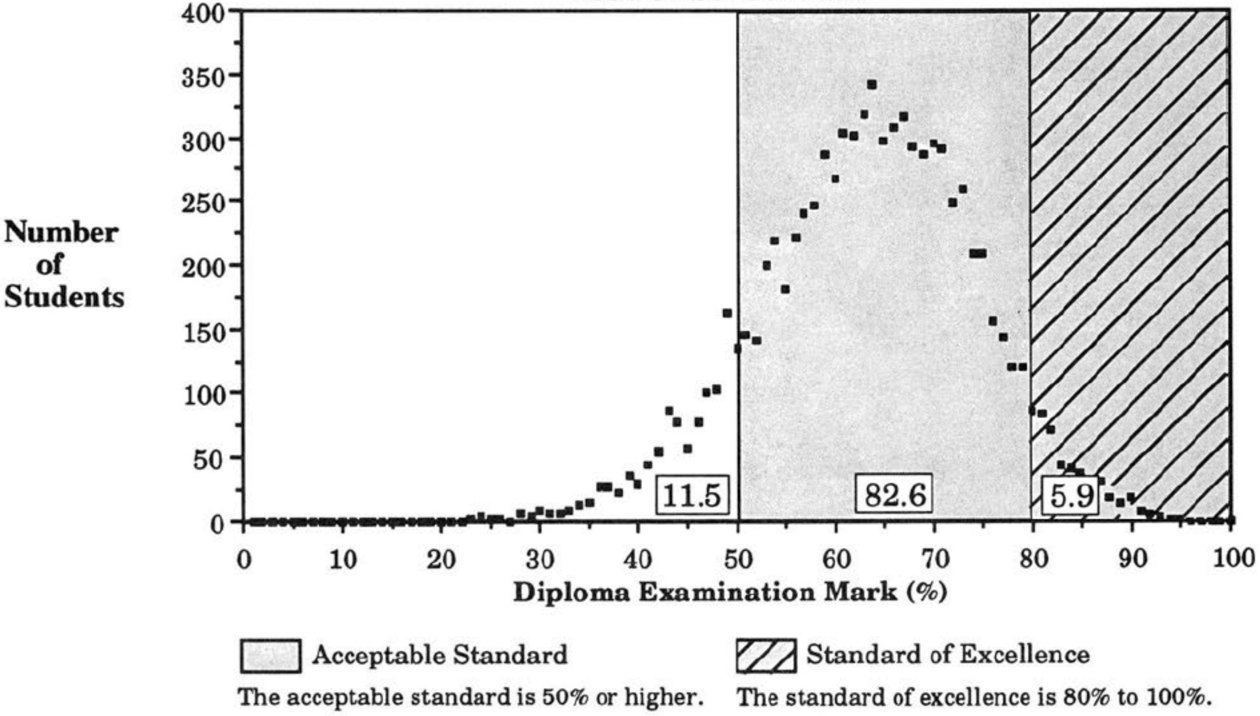
### STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

During the 1990-91 school year, approximately 27% of the students who wrote a diploma examination in English wrote English 33. This proportion of the total population has remained relatively constant over the last three school years. English 33 is a course "appropriate for students intending to go to vocational school or to seek employment immediately after leaving high school" (*Senior High School Language Arts 1982 Curriculum Guide*, page 6). This small proportion of Grade 12 students writing English 33 may indicate that most students intend to go on to academic postsecondary studies.

### OVERALL PERFORMANCE

The overall performance of students writing the English 33 diploma examinations during the 1990-91 school year was satisfactory and was similar to performance in previous years. In 1990-91, 88.5% of the students writing English 33 attained diploma examination marks at or above the *acceptable standard*, and many students, 5.9%, attained diploma examination marks at or above the *standard of excellence* (see Figure 7-2). The proportion of students who did not meet the acceptable standard was 11.5%; however, most of these (9.2% of all students) attained marks ranging from 40% to 49%. These students may be able to achieve the *acceptable standard* on future examinations in English 33 if they receive further instruction to improve their knowledge and skills.

**Figure 7-2**
**Distribution of English 33 Diploma Examination Marks**
**1990-91 School Year**



## ACHIEVEMENT OF STANDARDS

*Acceptable Standard*

Most of the students who achieved the *acceptable standard* were able to respond clearly and correctly to all three assignments in Part A: Written Response. They demonstrated a clear understanding of the reading selection in their responses to *Section I: Personal Response to Literature*. They addressed the assignment in a general manner and presented conventional, but credible, opinions. Their writing was usually sincere in tone. An improvement in planning and a parallel, perhaps resultant, improvement in organization was noted by markers.

When responding to *Section II: Functional Writing*, many of these students used information supplied in the assignment without elaboration. Students who just met the *acceptable standard* tended to omit some of the details provided in the assignment; however, they were able to adopt an appropriate tone that demonstrated an awareness of audience.

When responding to *Section III: Response to Visual Communication*, these students interpreted the photograph in a conventional way, using generalized details for support. Students who just met the *acceptable standard* had problems organizing their work coherently.

Students who just met the *acceptable standard* in their written work understood what was expected of them but tended to respond in a generalized, conventional way. They provided few specific details that would illustrate their ideas. Writing skill demonstrated by these students was minimally acceptable; some of the errors in the conventions of written language reduced the clarity of communication. The students took few risks in using complex structures.

In responding to Part B: Reading, students who achieved the *acceptable standard* were able to understand those reading selections that were intended for a general audience. They were able to draw some inferences from context and to apply basic concepts such as metaphor and foreshadowing. In responding to reading selections in which meanings were straightforward, they were able to discern such features as cause and effect and writer's bias. These students tended to have difficulty understanding and interpreting irony.

*Standard of Excellence*

Students who achieved the *standard of excellence* generally produced work of exceptional quality in all of the assignments in Part A: Written Response. When responding to *Section I: Personal Response to Literature,* most of these students demonstrated not only that they understood the situation presented in the reading selection, but also that they were able to react to it in an insightful way. These students used precise, well-chosen details that provided thoughtful support for their themes. They were able to select examples and illustrations from the reading selections, from their own experience, and from other literature, to fulfil a specific purpose in their responses. These students wrote substantial compositions of exceptional quality and achieved unity through well-developed, coherently related paragraphs. Errors in mechanics and grammar were rare. Errors that were present were those that could be expected in any first-draft work created under time constraints. These students projected confidence in their writing.

When responding to *Section II: Functional Writing*, students achieving the *standard of excellence* provided significant information that was enhanced by appropriate and precise details. These students had little difficulty arranging the significant and often lengthy information that they presented. They used an appropriate tone and demonstrated awareness of and sensitivity to their audience.

When responding to *Section III: Response to Visual Communication*, the students achieving the *standard of excellence* were able to interpret the photograph insightfully, stating an appropriate theme or idea. This idea was usually extended and reinforced throughout the composition. These students chose specific elements to support their idea and explained how the photographer's choices reinforced that idea.

In responding to Part B: Reading, students achieving the *standard of excellence* were able to read and understand the full range of reading selections. They were able to delve beyond the literal level of the literature and make important inferences. These students demonstrated that they read the selections and all parts of each question thoughtfully before answering.

Results from the 1990-91 school year indicated that the performance of English 33 students was generally satisfactory. The examination results for Part A: Written Response demonstrated that, often, students' themes were reflections of their warmth and awareness of human values. The examination results for Part B: Reading demonstrated that most students did very well on the majority of terminology questions. This is important because students receiving credit in English 33 are expected to have developed some understanding of the technical aspects of literature.

## SOCIAL STUDIES 30

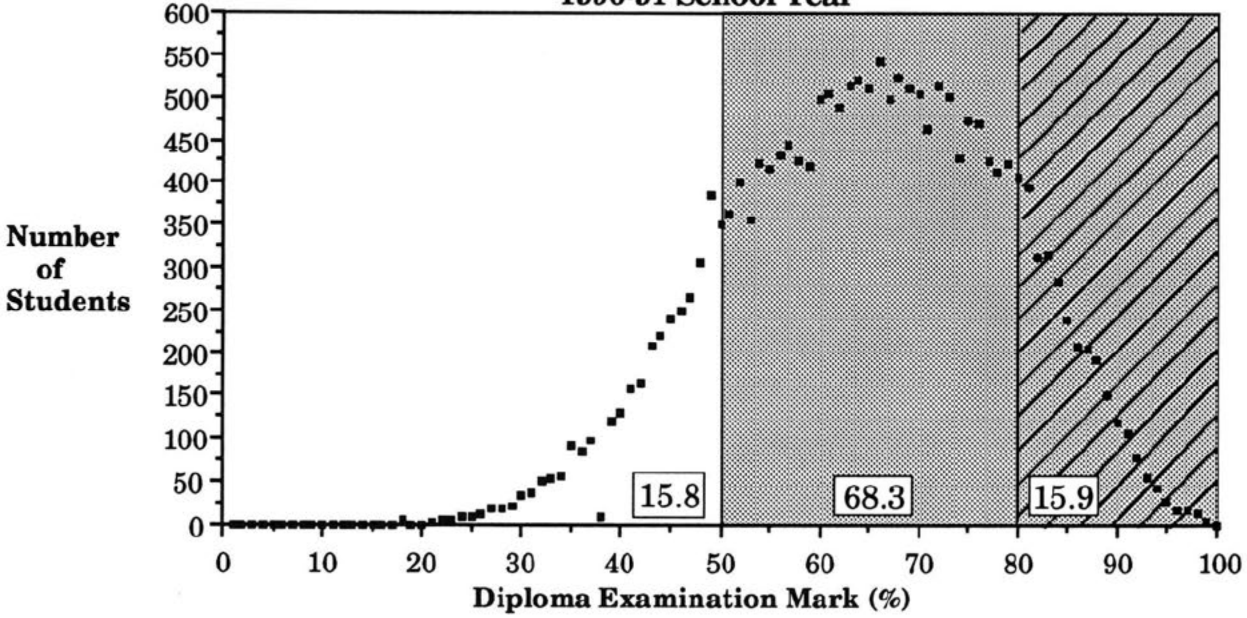
### STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

During the 1990-91 school year, approximately 88% of the Grade 12 population who wrote an English 30 Diploma Examination wrote the Social Studies 30 Diploma Examination. To qualify for an Advanced High School Diploma in Alberta, a student must receive credit in Social Studies 30 in addition to receiving credit in English 30. This suggests that many of the students who expected to graduate in 1991 planned to earn an advanced diploma. It should also be noted that 1,478 more students wrote the Social Studies 30 Diploma Examination in 1990-91 than in 1989-90.

### OVERALL PERFORMANCE

The overall performance of students writing the Social Studies 30 diploma examinations improved noticeably from previous years. In 1990-91, 84.2% of the students writing Social Studies 30 attained diploma examination marks at or above the *acceptable standard,* up from 79.9% in 1989-90. A significant proportion of the students, 15.9%, attained diploma examination marks at or above the *standard of excellence*, up from 14.5% in 1989-90 (see Figure 7-3). Although 15.8% of the students did not meet the *acceptable standard*, most of this group (11.6% of all students) obtained marks ranging from 40% to 49%. Many of these students may be able to achieve the *acceptable standard* on future diploma examinations in Social Studies 30 if they receive additional instruction.

**Figure 7-3**
**Distribution of Social Studies 30 Diploma Examination Marks**
**1990-91 School Year**



▨ Acceptable Standard — The acceptable standard is 50% or higher.

▨ Standard of Excellence — The standard of excellence is 80% to 100%.

## ACHIEVEMENT OF STANDARDS

### *Acceptable Standard*

In answering the multiple-choice questions in Part A of the examination, students who achieved the *acceptable standard* were able to recall and comprehend certain historical events or economic and political concepts. Students just meeting the *acceptable standard* experienced difficulty, however, with questions involving various critical thinking skills and the application of knowledge to new or unfamiliar situations. In particular, difficulty arose with textual or data-based questions – such as those involving a cartoon, graph, map, or series of quotations – that required students to see relationships, interpret trends, understand cause and effect, or identify stated or unstated assumptions.

Many students who just met the *acceptable standard* had difficulty dealing with the complexity of the task on Part B: Written Response, although these students are demonstrating more and better awareness of how to develop and organize an argumentative essay. Typically, these students continue to present narrative descriptions of both relevant and irrelevant detail.

They appear unable to demonstrate a subtle conceptual grasp of the issue, perhaps because they view the issue, and their position regarding it, in absolute, unequivocal terms. They also appear to be uncomfortable with the "grey areas" and seek refuge in "black or white" absolutes.

These students also appeared to have difficulty co-ordinating the application of historical and contemporary knowledge. To do well, students must apply and clearly relate pertinent information and ideas as evidence to support their position.

Students who fell short of the *acceptable standard* substituted memorized information for reasoned thought and made unsupported simple assertions. Writing that presented a superficial, non-analytical approach received lower scores, as did writing that presented dated perceptions related to many of the momentous changes our world has recently experienced. It was noted that some writers who developed evidence from the Swedish or Soviet examples used quite incorrect information. This may indicate a problem with outdated learning resources.

### *Standard of Excellence*

In answering the multiple-choice questions in Part A, students achieving the *standard of excellence* demonstrated that they understood social studies concepts and comprehended historical, political, and economic relationships, many of which are very complex. They were consistently able to interpret and evaluate information and ideas, and to review, analyse, and synthesize specific information.

Students who achieved the *standard of excellence* often produced powerful and substantive writing in their responses to the assignment in Part B: Written Response. For these students to have produced such compositions, given the complexity of the task and the constraints of time, is truly remarkable. Many of the responses of students achieving at this level revealed qualities of argument, support, development, and organization that exhibited a breadth of historical and contemporary knowledge. Students achieving the *standard of excellence* clearly showed ownership of the ideas they expressed; their writing revealed engaged minds thoughtfully immersed in issues relevant and meaningful to them.

## FRANÇAIS 30

### STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

Français 30 is the final course of the Français 10-20-30 program designed for francophone students according to Section 23 of the *Canadian Charter of Rights and Freedoms*. Students enrolled in Français 30 are required to write the Français 30 Diploma Examination.

There were 70 regular school students who wrote the Français 30 Diploma Examination in the 1990-91 school year, 35 of whom completed the course in the first semester and wrote the January 1991 examination. The other 35 were in a full-year program and wrote the examination in June 1991. Because very few students wrote at each examination administration, results must be interpreted with caution.

The Français 30 Diploma Examination was also administered to "private study" students, that is, to adults seeking credit in high school French without having taken a course. There were four such students who wrote in January, one in June, and one in August. There was also one candidate in June registered as a special case student.

### OVERALL PERFORMANCE

The overall performance of the 70 students who wrote the Français 30 Diploma Examination in the 1990-91 school year was satisfactory. They all attained final blended marks at or above the *acceptable standard*, and 17.1% of them attained the *standard of excellence*.

### DISCUSSION OF PERFORMANCE

La Partie A: Production écrite

The written-response section of the Français 30 Diploma Examination required students to write two assignments related to a selection from a work of literature presented on the examination. The first assignment, "Premier Sujet," elicited a personal response to the selection. The second, "Deuxième Sujet," asked students to choose literature read in class and to relate it to a given theme inspired by the selection.

Students were able to understand the tone and content of the given literature and to respond clearly and effectively. For the personal response, they expressed their personal opinions and reactions with confidence. Most took the more obvious approach to the question by supporting the given theme, and a few were able to present an opposing view successfully. Examples taken from their own experiences or from general observations were generally appropriate and often interesting. Although the writing of students achieving the *acceptable standard* was sometimes wordy and repetitious, what they had to say was clearly understood by markers. Students achieving the *standard of excellence* were able to present their ideas succinctly, directly, and emphatically.

In the second assignment, which was related to literature read in school, students had no difficulty selecting works that reflected the given theme. Students achieving the *standard of excellence* chose significant details from the literature to show how the given theme was developed by the author. Students achieving the *acceptable standard* tended to choose more minor details or to repeat ineffectively one significant detail. All students, however, were able to convince the readers of the relationship between what they had read and what the assignment required. Students have learned well how to organize their ideas, how to choose effective vocabulary and structures, and generally how to follow conventions of language. In the June 1991 examination, the topic of the "Deuxième Sujet" lent itself, in some measure, to a retelling of the story. However, for the most part, students overcame this tendency and had control of their task.

It must be remembered that students are writing in a limited time under stress and that their work is considered a first draft. Under these conditions, what they achieved was impressive and often pleasurable to the reader.

La Partie B: Compréhension écrite

Part B: Reading Comprehension consisted of two booklets. The readings booklet contained selections from non-fiction and fiction, one poem, and one piece of drama. The questions booklet contained 70 multiple-choice questions based on these readings. The questions were classified according to thinking skills.

Students' performance was generally satisfactory. They were able to identify and select, infer, interpret, and evaluate main ideas. They were also able to recognize the rapport between the author and the reader as well as discern values expressed. Students achieving the *standard of excellence* seemed better able to discern the nuances required to choose the right answer in some questions. Students achieving the *acceptable standard* did well on the questions requiring a literal understanding. These students should be encouraged to refer to the reading selections when contemplating their answers. This could help them to perceive nuances implied in the alternatives.

## MATHEMATICS 30

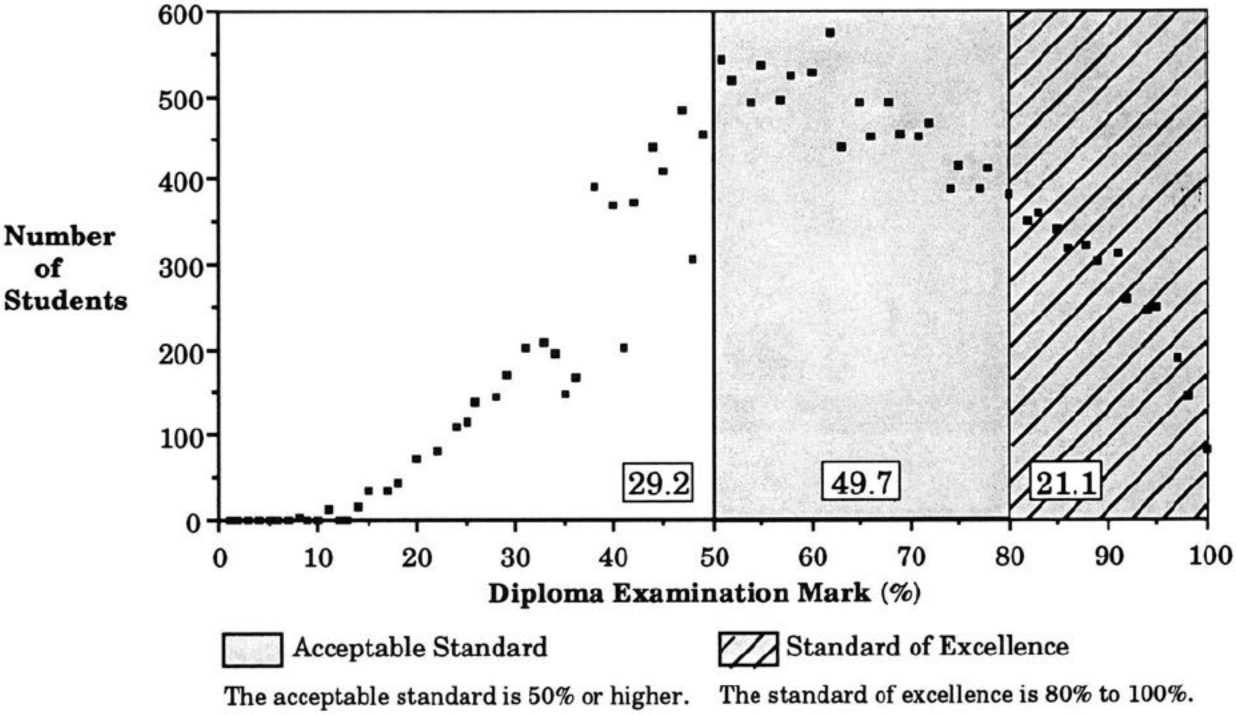
### STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

In the 1990-91 school year, 18 628 students wrote the Mathematics 30 Diploma Examination. This represents approximately 58% of the students who wrote either the English 30 or English 33 diploma examinations. This population does not include approximately 940 students who participated in the validation of the Mathematics 30 Course of Studies. These students were exempt from the 1990-91 series of diploma examinations.

### OVERALL PERFORMANCE

There is a concern with the overall performance of students who wrote the Mathematics 30 diploma examinations during the 1990-91 school year, even though a slightly larger proportion of students achieved blended marks at the *standard of excellence* compared with 1989-90. In 1990-91, 70.8% of the students writing Mathematics 30 attained diploma examination marks at or above the *acceptable standard*, and a significant proportion of the students, 21.1%, attained diploma examination marks at or above the *standard of excellence* (see Figure 7-4). The proportion of students who fail to meet the *acceptable standard* is increasing: 29.2% in 1990-91 compared with 26.8% in 1989-90.

**Figure 7-4**
**Distribution of Mathematics 30 Diploma Examination Marks**
**1990-91 School Year**



## ACHIEVEMENT OF STANDARDS

*Acceptable Standard*

Students who did not meet the *acceptable standard* of performance on the Mathematics 30 Diploma Examination had difficulty solving problems other than those that required solving for a single piece of information using a formula provided on the formula sheet. These students were able to solve problems that required a one-step translation, such as changing the measure of an angle from degree measure to radian measure.

In number skills, students who did not achieve the *acceptable standard* had difficulty dealing with numbers other than whole numbers. This group of students generally saw mathematics in parts; that is, they could not make relationships among mathematical concepts. For example, these students were able to find the x-intercepts of a graph and to factor a polynomial but were not able to recognize that there is a relationship between the factors of a polynomial and the x-intercepts of the graph.

Students who met the *acceptable standard* of performance were able to solve problems involving more than one step as long as the information provided was given in a "standard" form and could be referenced on the formula sheet. In trigonometry, for instance, students were able to provide the solution for a trigonometric equation but were unable to provide the missing piece of a trigonometric equation when the solution was given. Similarly, these students were able to provide information about conic sections as long as the equation for the quadratic relation was given in the standard form. Once the material was provided in a "non-standard" format, many students who met the *acceptable stand-*

*ard* had difficulty. For the most part, students in this group were able to recognize relationships among mathematical concepts and to identify these relationships as long as they were presented in a specific sense. Many were not able to identify these relationships in the general case.

*Standard of Excellence*

Students who attained the *standard of excellence* in Mathematics 30 had little difficulty solving any problems, regardless of the manner in which the material was presented and the number of steps required to solve the problem. For instance, those students who achieved the *standard of excellence* were able to read information from equations that were presented in both a "standard" and a "non-standard" form. Further, they recognized and were able to describe relationships between mathematical concepts in both the specific and the general cases. That is, students who attained the *standard of excellence* were able to relate one concept to another and to apply concepts to unfamiliar situations.

## SCORING THE JUNE 1991 MATHEMATICS 30 DIPLOMA EXAMINATION

Once a diploma examination has been written, student responses to all questions are reviewed. During the review of the June 1991 Mathematics 30 Diploma Examination, some areas of concern with the examination and with the scoring criteria emerged.

Numerical-response question 3 required students to find the height of a tree on a hill, given the angle of elevation of the sun and the length of the tree's shadow. Many students interpreted the wording "flat side of a hill" to mean the top of the hill and were therefore confused about how the top of the hill could form an angle of 20° with the horizontal. Because of the number of students who interpreted the question in this way, including those performing at the *standard of excellence*, it was removed from the examination.

Secondly, preliminary statistics showed that a high number of zeros were awarded for the first written-response question. A review of 100 randomly selected papers confirmed that the zeros were indeed correctly assigned. However, the review of this and other written-response questions necessitated adjusting the scoring criteria.

Written-response question 1 required students to understand a concept and then carry out a series of operations to arrive at a correct answer. The original scoring guide for this question was adjusted so that students could be awarded marks for each of these steps.

Similarly, written-response question 2 required students to answer two knowlege-level questions and then synthesize their responses to solve a third part of the question. The original scoring guide was adjusted so that those students who understood the concept of synthesizing were rewarded.

Written-response question 3 required students to write the equation of two relations and then find their intersection. The original scoring guide was adjusted so that students were rewarded for understanding the concept of writing equations and for writing the equations and synthesizing, even though they might have made an arithmetic error.

# BIOLOGY 30

## STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

In the 1990-91 school year, 19 167 students wrote the Biology 30 Diploma Examination. This represents approximately 61% of the students who wrote either the English 30 or English 33 diploma examinations and is an increase of 1% in the proportion of diploma students who selected Biology 30 (a "B" option) compared with the previous year. A gender comparison of the 1990-91 Biology 30 population to the 1989-90 population reveals a disproportionate increase in females (7.0%) compared with males (1.5%). The percentage of females who obtained Biology 30 diploma examination marks in 1990-91 was 58.7 compared with 41.3% of males. Biology 30 has personal appeal for many students but as a prerequisite for career-oriented programs, it offers a narrow focus.

The proportion of the Biology 30 population who wrote Biology 30 diploma examinations while in their second year of high school (9.1%) increased dramatically compared with the average of the four previous years (1.9%). A decrease occurred in the proportion of the population who wrote Biology 30 diploma examinations while in their third year of high school (89.2% compared with 81.1%). The proportion of fourth year students and of those who transferred in from outside the province remained about the same as in the previous four years (see Table 7-1).

Approximately 41% of the students who obtained a Biology 30 diploma examination mark also obtained a mark in Chemistry 30 during the 1990-91 school year. Approximately 17% of the students who obtained a Biology 30 diploma examination mark also obtained a mark in Physics 30. These percentages are similar to those of the previous year.

**Table 7-1**
**1990-91 Biology 30 Diploma Examination Population and Achievement**

| Subgroup | 2nd Year of High School | 3rd Year of High School | 4th Year of High School | Transferred In |
|---|---|---|---|---|
| Per Cent of Population | 9.1 | 81.1 | 5.2 | 4.6 |
| Examination Average | 69.5 | 63.5 | 58.9 | 65.2 |

## OVERALL PERFORMANCE

The overall performance of students who wrote the Biology 30 diploma examinations during the 1990-91 school year increased in comparison with overall performance in 1989-90. This is not only reflected in the examination average (64.1% compared with 62.6%), but also in the proportion of students (77.7% compared with 75.0%) who achieved the *acceptable standard*.

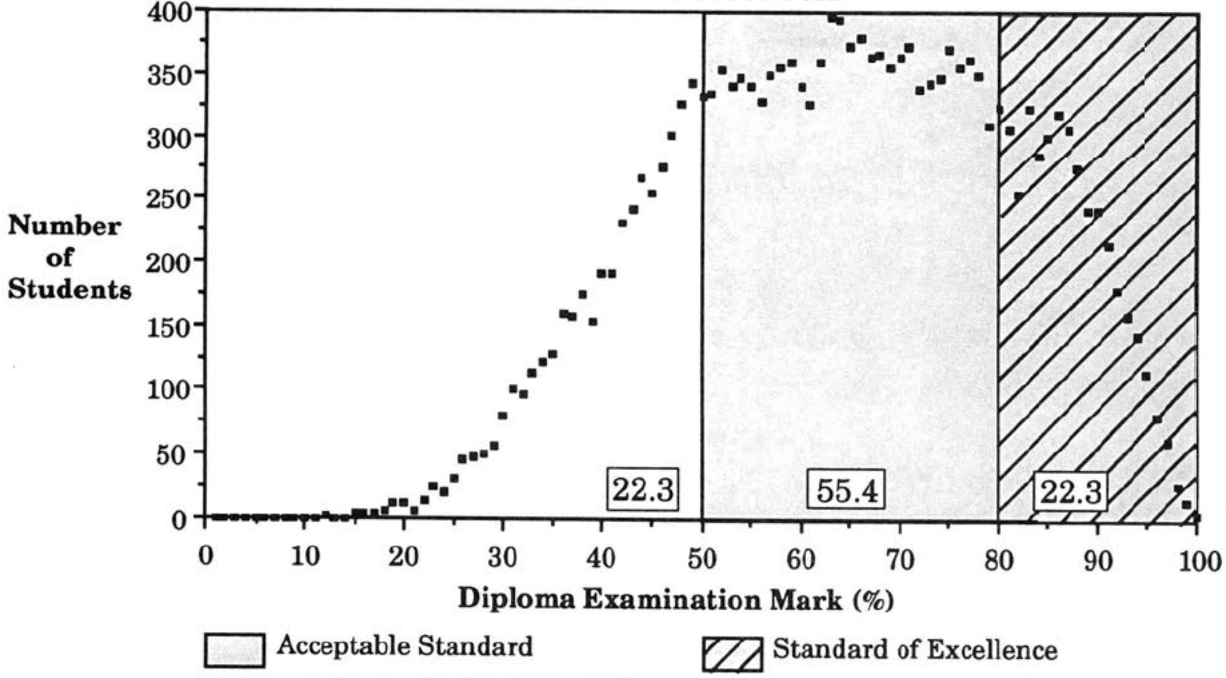
It is of particular interest that those who wrote during their second year of high school achieved an examination average of 69.5%, whereas the average achieved by third-year students was 63.5%. The comparable averages for the previous four years are 59.2% and 63.9% respectively. Students who fulfil the minimum (one) diploma science requirement (Category B) for the Advanced High School Diploma tend to take Biology 30 rather than Chemistry 30 or Physics 30. This is particularly characteristic of the female student population.

As in the past, a high correlation (0.821) exists between Biology 30 school-awarded marks and Biology 30 diploma examination marks. High correlations also exist between diploma examination marks in Biology 30 and Chemistry 30 (0.717) as well as Physics 30 (0.706).

The percentage of female students who achieved the *acceptable standard* on the Biology 30 diploma examinations was 76.3 compared with 79.6 of male students. The percentage of females who achieved the *standard of excellence* on the Biology 30 diploma examinations was 20.9 compared with 24.3 of males. The Biology 30 diploma examination mean for females was 63.3% compared with 65.3% for males.

The distribution of Biology 30 diploma examination marks is given in Figure 7-5.

**Figure 7-5**
**Distribution of Biology 30 Diploma Examination Marks**
**1990-91 School Year**



The acceptable standard is 50% or higher. The standard of excellence is 80% to 100%.

### ACHIEVEMENT OF STANDARDS

*Acceptable Standard*

Students who failed to attain the *acceptable standard* (22.3% of the population) found it difficult to identify morphological structures represented by diagrams and then to relate the structures to functional descriptions. They lacked the ability to form generalizations/conclusions from contextual data. They were deficient in the basic knowledge of human physiology and therefore had problems arranging physiological processes in sequential order. They also found it difficult to trace the pathways that materials follow through the human body. These students lacked the understanding and skills required to compose responses to problems that involved analysis and evaluation of data. Determining cause-and-effect relationships also eluded them.

Students who attained the *acceptable standard* but were below the *standard of excellence* (55.4% of the population) were capable of selecting correct responses but found it difficult to create written responses. These students were able to select correct responses to questions that evaluated the major concepts in direct ways. Questions that required multistep reasoning processes proved more difficult. Inadequate understanding of the meaning of key scientific vocabulary prevented these students from identifying correct associations between related physiological processes. This was particularly evident if the terms identified processes that occur at the molecular or ionic level. This group of students found it difficult to compose explanations for physiological phenomena in terms of sequential cause-and-effect relationships. They could interpret simple sets of data but found it difficult to draw inferences from complex data tables. They could identify the variables in simple experimental designs but lacked the ability to evaluate complex investigations.

*Standard of Excellence*

Students who attained the *standard of excellence* (22.3% of the population) did not depend on the elements of chance and intuitive guessing. They could create written responses at a level that was consistent with their ability to select correct responses.

These students could analyse multistep physiological processes and thereby clearly recognize cause-and-effect relationships.

They could recall precise knowledge about human organ structure and function and could then use this knowledge to compose explanations for abnormal body conditions. They were able to trace the pathways that materials follow through the human body and arrange physiological processes in sequential order. These students could make and support predictions based on the data provided. They could evaluate experimental designs and suggest corrective procedures if errors were evident. The students in this group communicated clearly, logically, and precisely in their written responses.

## CHEMISTRY 30

### STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

In the 1990-91 school year, 15 312 students wrote the Chemistry 30 Diploma Examination. This represents approximately one half of the number of students who wrote either the English 30 or English 33 diploma examinations. Even though this appears to meet the expected size of the target group, not all students capable of achieving the *acceptable standard* or the *standard of excellence* were enrolled in chemistry. For example, some students who were successful in Physics 30 did not take Chemistry 30. These students could be encouraged to enrol in the chemistry program with an expectation of success.

The proportion of the Chemistry 30 population who wrote Chemistry 30 diploma examinations while in their second year of high school increased dramatically from approximately 1.5% of the total writing population in the previous four years to 7% this past year (see Table 7-2). This group of students also changed dramatically in terms of their academic achievement on the diploma examinations. Historically, this group normally scored lower than those students in their third year of high school. This year, second year students scored almost 5.5% higher than third year students.

This shift in the 1990-91 population could be the result of some second year students hedging against the possibility of having to spend a fourth year in high school should they need to repeat a 30-level course.

The number of fourth year and out-of-province students did not change relative to previous years' enrolments and achievement.

**Table 7-2**
**1990-91 Chemistry 30 Diploma Examination Population and Achievement**

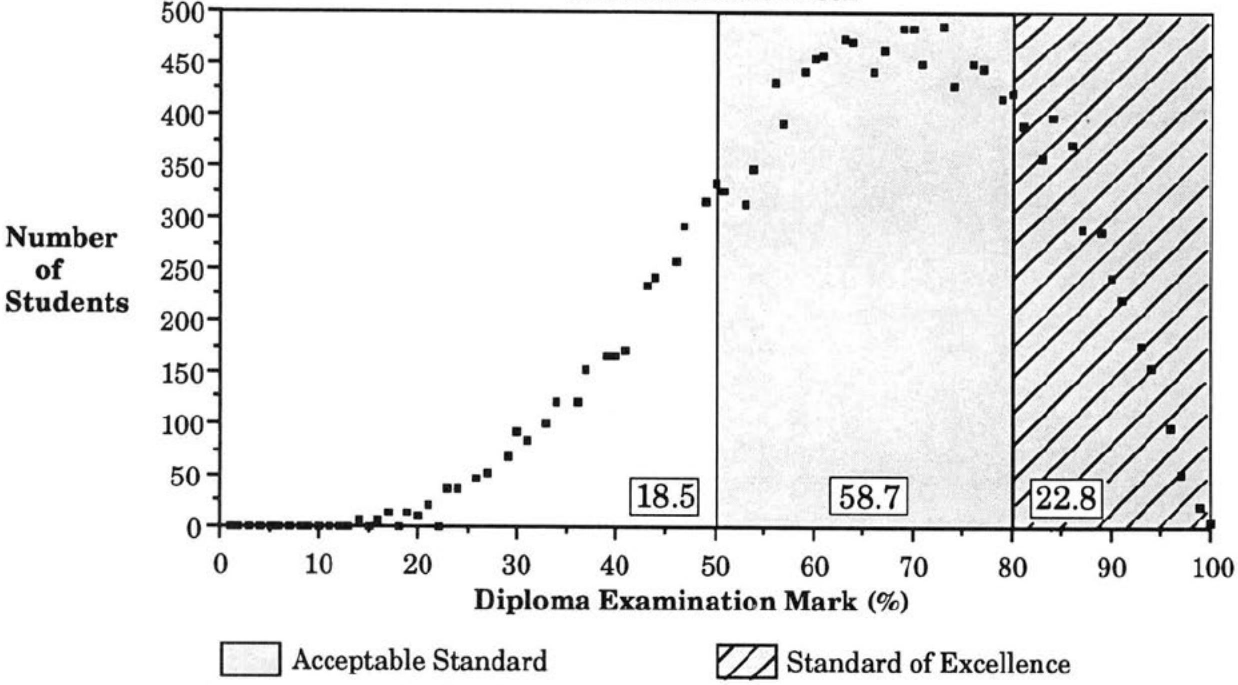
| Subgroup | 2nd Year of High School | 3rd Year of High School | 4th Year of High School | Transferred In |
|---|---|---|---|---|
| Per Cent of Population | 7.0 | 83.6 | 4.2 | 0.2 |
| Examination Average | 69.9 | 64.2 | 58.5 | 67.9 |

### Overall Performance

The overall performance of students writing the Chemistry 30 diploma examinations during the 1990-91 school year was satisfactory, with more students achieving the *acceptable standard* (see Figure 2-16). In 1990-91, 81.5% of the students writing Chemistry 30 attained diploma examination marks at or above the *acceptable standard*, and a significant proportion of the students, 22.8%, attained diploma examination marks at or above the *standard of excellence* (see Figure 7-6). Many of the students, 7.2%, attained marks ranging from 44% to 49%. These students could achieve a pass with further instruction.

The distribution of Chemistry 30 diploma examination marks is given in Figure 7-6.

**Figure 7-6**
**Distribution of Chemistry 30 Diploma Examination Marks**
**1990-91 School Year**



The acceptable standard is 50% or higher. The standard of excellence is 80% to 100%.

*Acceptable Standard*

Students who did not attain the *acceptable standard* of performance on the Chemistry 30 Diploma Examination (18.5% of the population) had difficulty solving stoichiometric problems other than those involving a simple single-step addition/subtraction problem, such as calculating the voltage of a cell given the half-reactions. These students were also unable to transfer data to or from graphical form or to utilize data to predict trends or patterns. In general, these students had difficulty creating their own responses and as a result did not do well in the created response sections of the examination. They did, however, recognize correct statements about basic concepts and had the greatest success on the multiple-choice questions.

Individuals who met or exceeded the *acceptable standard* of performance but were below the *standard of excellence* (58.7% of the population) were able to do stoichiometry of more than one step as long as it did not involve writing and balancing a chemical reaction equation. These students could transpose data to and from a graphical form. They successfully ranked species on the basis of their reactivity and were able to use and extract information from the data booklet tables. However, they had difficulty recognizing ratios other than 1:1 in acid-base chemistry and solving complex stoichiometric problems. They recognized correctness of a situation for most concepts but had difficulty explaining why something was inappropriate or incorrect.

These individuals worked best at the macroscopic level and as a result did well on the multiple-choice section questions. They averaged almost 50% on the created (numerical and written) response sections of the examination.

*Standard of Excellence*

Students who attained the *standard of excellence* (22.8% of the population) were able to solve any stoichiometric problem and to recognize ratios of other than 1:1 in acid-base chemistry. They also recognized relationships and ratios between the solute and the resulting species, and mastered concepts such as strength and concentration. They applied their knowledge at the atomic level and therefore were able to explain situations and properties by outlining what happens on the molecular level. They applied their knowledge in new and novel situations and created a response. Students attaining the *standard of excellence* did well on all sections of the examination. Their work on the created response sections was better than was expected.

# PHYSICS 30

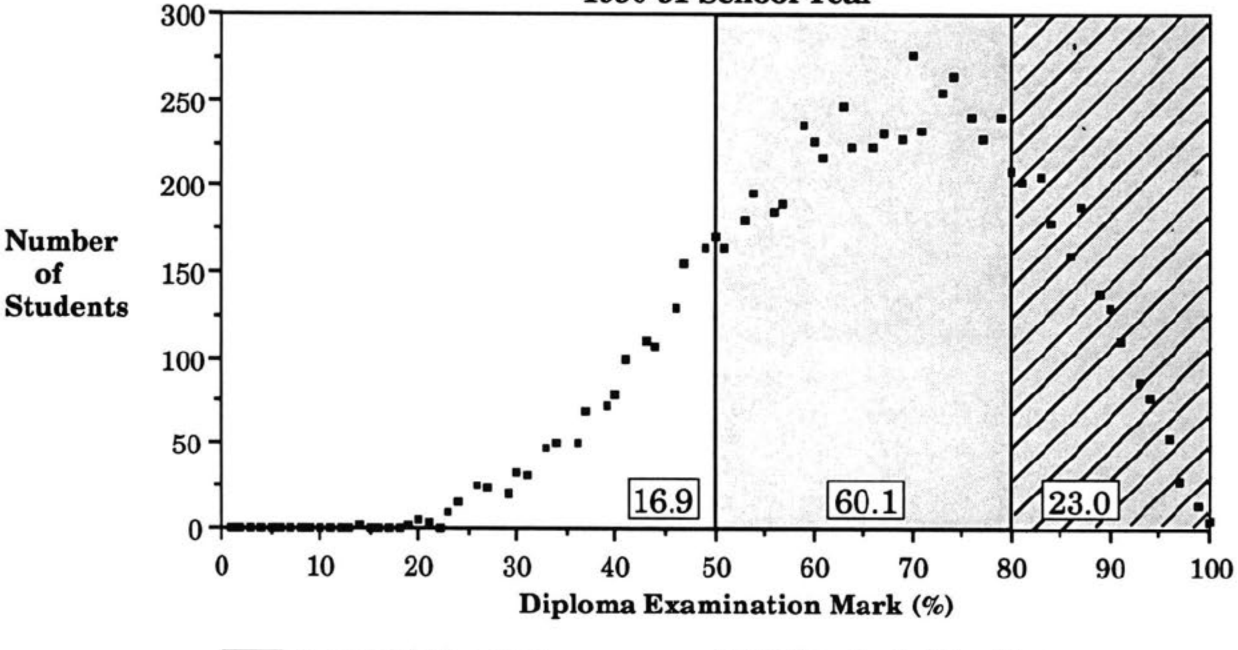
## STUDENT POPULATION – WHO WROTE THE EXAMINATIONS?

The Physics 30 course has learner expectations that are suitable for just under half of those third-year high school students who enrol in English 30 or English 33. In the 1990-91 school year, 7 736 students wrote the Physics 30 diploma examinations. This represents approximately 25% of the number of students who wrote either the English 30 or the English 33 diploma examinations. The number of males who wrote the Physics 30 diploma examinations was 5 096, which was approximately 34% of the number of males who wrote an English examination. The number of females who wrote the Physics 30 diploma examinations was 2 640, which was approximately 16% of the number of females who wrote an English examination. This relatively low percentage of students writing the Physics 30 diploma examinations is consistent with the percentages of previous years. The female participation represents a slight drop from the previous year, but it is worth noting that female students who wrote the Physics 30 diploma examinations did slightly better than male students did. Female registration should continue to be encouraged, as a growing number of career opportunities have Physics 30 as a prerequisite for professional studies.

## OVERALL PERFORMANCE

The overall performance of students writing the Physics 30 diploma examinations during the 1990-91 school year was satisfactory (see Figure 7-7) and was consistent with the performance in previous years. The proportion of students with diploma examination marks at or above the *standard of excellence* was 23.0% which represents a drop of 4.0% from the previous year. In contrast, the number of students who did not achieve the *acceptable standard* was 4.1% less than the previous year's figure of 21.0%. This increase in the number of those achieving the *acceptable standard* is encouraging.

**Figure 7-7**
**Distribution of Physics 30 Diploma Examination Marks**
**1990-91 School Year**



The acceptable standard is 50% or higher. The standard of excellence is 80% to 100%.

## PERFORMANCE FROM SEMESTER TO SEMESTER

Students who wrote the January 1991 diploma examination did better overall than those who wrote the June 1991 examination, even though both diploma examinations were designed to the same level of expectation. Achievement comparisons are shown in Table 7-3.

**Table 7-3**
**Comparison of Physics 30 Diploma Examination Results**
**January and June 1991**

| Diploma Examination Results | January 1991 | June 1991 |
|---|---|---|
| Students Achieving Acceptable Standard | 87.3% | 78.7% |
| Students Achieving Standard of Excellence | 24.4% | 20.8% |
| Diploma Examination Average | 67.7% | 63.9% |

## ACHIEVEMENT OF STANDARDS

### *Acceptable Standard*

Students attaining the *acceptable standard* could reliably state and solve only those problems that could be related quickly to an equation in the data booklet. For this group, laboratory skills were limited to following explicit directions and to using laboratory data to verify known physics information. These students were capable of defining and calculating quantities such as slope, refractive index, orbit radius, electric force, and photoelectric work function. They tended to use item-specific methods in their problem solving and rarely used the major generalizations of physics such as Newton's laws or the conservation laws of charge, momentum, and energy. Thus, students performing near the *acceptable standard* showed only limited understanding of the full scope and sequence of physics. Within this restricted range of content, such students performed competently.

In the 1991 series of diploma examinations, students who reached the *acceptable standard* showed that they could use the equations and information provided to solve problems requiring single-step calculations. They were also competent at recalling facts and essential definitions related to specific concepts. Many students found it difficult both to translate definitions into alternative forms and to judge whether a data booklet equation was valid within the range of values given in a particular problem. These students had difficulty identifying the relationship between two variables that had a graphical representation. Students achieving at this standard also found it difficult to make predictions based on information or data presented. They found the multiple-choice section, where answers are selected, far easier than the written-response section, where answers are created. Those who did not attain the *acceptable standard* were also overly dependent on the data booklet but failed to use it effectively even in the solution of single-step, calculation-type problems. These students found the written-response section very difficult and typically scored 30% or less.

*Standard of Excellence*

Students attaining the *standard of excellence* showed far more flexibility and creativity than those achieving the *acceptable standard*. They sought to use general methods of solution and were not afraid to use conservation laws to solve unusual problems. They illustrated a transference of knowledge from one area of physics to another and expressed their answers clearly and concisely. They made inferences that were not part of their "known" area of physics. These students were able to use generalizations of physics and distinguish between vectors and scalars or forces and fields.

In the 1991 series of diploma examinations, students with final blended marks near the *standard of excellence* tended to use the data booklet to support their problem-solving strategies but were not overly dependent upon it. Relationships between variables were easily recognized and stated by these students. Those who achieved just below this standard had some difficulty with questions that require multistep solutions and needed explicit cues before they were able to use a wider range of problem-solving strategies. In many cases, such students solved more complex problems in the multiple-choice format but experienced difficulty with similar concepts tested in a written-response format. Those who reached the *standard of excellence* were able to use generalizations to solve problems and did well on questions that required the use of ratios in the solutions. They were adept at selecting the correct response in the multiple-choice section and in creating their own responses for similar questions in the written-response section. When confronted with a problem requiring the use of two or more steps, they created their own procedures for solving problems. Many of their responses to the open-ended questions showed a high level of sophistication.

# APPENDIX A
# DIPLOMA EXAMINATION DEVELOPMENT PROCESS

The staff of the Student Evaluation Branch gives great care and attention to the development and marking of all diploma examinations in order to ensure that students' marks on diploma examinations are fair and equitable measures of their achievement.

Many individuals work with the professional staff from the Student Evaluation Branch in the complex process of developing diploma examinations. These include classroom teachers, school and jurisdiction administrators and representatives from postsecondary institutions, the Curriculum Branch, Language Services Branch, and Regional Offices of Education.

The examination development process follows these steps:

- PLANNING
- APPROVING EXAMINATION BLUEPRINTS
- DEVELOPING EXAMINATION QUESTIONS
- CONSTRUCTING AND ADMINISTERING FIELD TESTS
- ANALYSING AND REVISING QUESTIONS
- CONSTRUCTING THE EXAMINATIONS
- APPROVING THE EXAMINATIONS
- PRINTING AND ADMINISTERING THE EXAMINATIONS
- MARKING THE EXAMINATIONS
- ANALYSING AND REPORTING THE RESULTS

It takes approximately 18 months to complete the development of a diploma examination.

## PLANNING

The first step in the planning phase for development of a diploma examination is the preparation, under the direction of the Curriculum Branch, of specifications based on the goals and objectives of the curriculum for each subject.

Examination developers in each diploma examination subject area then prepare an interim examination blueprint (an overall plan used to guide the development of an examination). If a diploma examination is undergoing extensive revision because of curricular change, or if a new examination is to be developed, an advisory committee of teachers and subject consultants will contribute to decisions about the emphasis and design of the examination.

Questions that must be addressed by examination developers and advisory committees, as examinations are designed and blueprints are drafted, include:

- What knowledge and skills can students be expected to possess?
- How can the various parts of the curriculum best be tested?
- What should the weighting be for each part of the curriculum that is tested?
- How long and how demanding should the examination be?
- What format will produce the most valid results?

- What types of questions will be most valid and reliable? (Multiple choice, short answer, extended written response?)
- How should the examination be organized in order to produce valid and reliable results?
- How will students' responses be scored? What will the criteria be for scoring?
- How should the results be reported?
- Who will receive the results?

In order to ensure that each examination is a fair and equitable measure of students' accomplishments in the course, and to ensure that results will be meaningful and reliable, examination developers incorporate statistical as well as curricular standards into the examination design.

Statistical standards include projected examination means, range of question difficulty, and requirements for reporting. For example, the mean of each diploma examination has been set at 65 per cent. This is the mid-point between chance selection (25 per cent) and perfection (100 per cent) rounded off to the nearest five per cent. The range of difficulty of multiple-choice questions is expected to vary from 30 per cent to 85 per cent to ensure that students with varying ability levels are challenged. Each dimension of the curriculum for which results are reported must contain at least six questions if the results are to be meaningful.

## APPROVING EXAMINATION BLUEPRINTS

Once examination developers and their advisory committees develop an examination design and blueprint, including criteria for scoring written responses, the proposed design is reviewed by a committee of Alberta Education personnel representing Regional Offices of Education, the Curriculum Branch (or Language Services Branch), and the Student Evaluation Branch.

The blueprint and design recommended by the Alberta Education committee are then reviewed by an Examination Review Committee that consists of representatives nominated by the Alberta Teachers' Association, the Conference of Alberta School Superintendents, the Universities Co-ordinating Council, the Public Colleges of Alberta, and Alberta Education. This committee makes recommendations regarding the examination design to the Director of the Student Evaluation Branch.

## DEVELOPING EXAMINATION QUESTIONS

Following approval of the examination design, format, and blueprints, examination developers plan for question development. On the recommendations of superintendents, classroom teachers from across the province are selected to work on question development committees chaired by examination developers from the Student Evaluation Branch.

Teachers serving on question development committees receive the necessary training about technical principles of question construction from the professional examination development staff of the Student Evaluation Branch. The teacher committees develop questions that meet the curricular and technical standards incorporated in the examination design and blueprints, and that will fairly test the skills and concepts that students can be expected to have acquired.

Questions developed in committee are then carefully screened, edited, and revised so that all blueprint requirements and technical standards are met. At this point, copyright approval is sought for testing materials such as literary selections, cartoons, graphs, maps, charts, data sets, etc.

## CONSTRUCTING AND ADMINISTERING FIELD TESTS

Examination developers at the Student Evaluation Branch construct field tests containing questions developed by teacher committees. Each field test is carefully edited and revised in order to ensure technical and curricular validity and faithfulness to the examination blueprint. School jurisdiction personnel grant permission for the administration of field tests to students in their systems in January and/or June of each school year.

Based on the geographic and demographic variables expected for the total population that will write a given diploma examination, the Student Evaluation Branch field testing administration staff selects a minimum sample of 250 students to write each field test. Field tests are administered only to students who are nearing completion of the diploma examination subject being tested so that their performances on the field test will be predictive of the performances of students writing the diploma examination.

Student Evaluation Branch professional staff members administer the field tests under secured examination conditions. This procedure allows examination developers to receive first-hand information from teachers and students about examination questions and formats. As well, the procedure ensures test security and uniform administration conditions so that statistical results can be considered reliable.

Teachers whose classes participate in field testing comment on:

- level of difficulty of questions
- curricular validity
- appropriateness of questions, data sets, reading selections, format
- problems with questions, stimulus material, art work
- clarity of instructions
- correspondence between questions and the way in which a concept is taught

Students are also encouraged to discuss the field test with the field test administrator.

All of the data – statistical and anecdotal – from field testing provide the examination developer with accurate and first-hand information that is used to ensure that the final form of each diploma examination is a valid and reliable measure of students' achievement.

## ANALYSING AND REVISING QUESTIONS

Examination developers carefully analyse the statistical results and teacher comments for each field test to determine the need for additional field testing. Individual questions or question sets requiring changes are revised and submitted for further field testing. If changes are not feasible, questions are discarded.

Those questions and question sets that prove successful in field testing are considered for inclusion in a diploma examination.

## CONSTRUCTING THE EXAMINATIONS

The diploma examinations are composed of questions and/or question sets that have proven to be valid in field testing. For each diploma subject, three parallel examinations are developed annually for administration in January, June, and August. The three examinations are designed to be parallel in form and equivalent in difficulty. Each examination is constructed according to the approved blueprint (i.e., each will have approximately the same number of questions testing a particular facet of the curriculum as specified by the blueprint). An information bulletin outlining the design, format, and marking criteria for each diploma examination subject is distributed to schools at the beginning of each school year. The information bulletins include changes from previous years' examinations, sample questions, and scoring guides.

Once a final form of a diploma examination is drafted, it receives extensive editing, proofreading, and technical checking.

## APPROVING THE EXAMINATIONS

The examination developers from the Student Evaluation Branch present the final form of each examination to the Alberta Education committee that represents the Curriculum Branch or Language Services Branch and Regional Offices of Education for review and recommendations for improvement.

The recommendations of the Alberta Education committee are incorporated into any additional revisions that are necessary. The examination developers then present the examination to the Examination Review Committee that recommended approval of the examination blueprint in the second phase of the examination development process. The Examination Review Committee conducts a thorough review of the proposed examination and recommends approval to the Director of the Student Evaluation Branch.

## PRINTING AND ADMINISTERING THE EXAMINATIONS

Following approval of the final form of a diploma examination, examination developers ensure completion of additional quality checks that include editing, proofreading, validating of correct answers by a teacher committee, checking print quality of art work and illustrations, confirming precise match to the blueprint, and completing a final estimate of difficulty for each question.

Each examination is printed and then distributed to schools just before the administration dates.

Schools are responsible for ensuring the security of examinations before administration and for ensuring that examinations are administered according to regulations. Each school receives extra copies of the January and June examinations for use in the school.

Administration of diploma examinations is scheduled annually in January, June, and August, and is conducted according to set regulations. Schedules and regulations are published in the *General Information Bulletin* that is distributed to schools each fall. Additional copies are available for purchase from the Learning Resources Distributing Centre (telephone 427-2767). The August examinations are confidential and therefore remain secured.

Students who have been identified as having learning and/or physical disabilities may apply for special provisions for examination writing. Included in the special provisions available to such students are the following: brailled examinations, large-print examinations, tape-recorded examinations, additional writing time, use of a word processor, use of a tape recorder for responses, and use of a sign language translator. The complete policy for special provisions is printed in the *General Information Bulletin* and is available on request from the Student Evaluation Branch (telephone 427-0010). Following administration, completed examinations are shipped (in accordance with security regulations) to Alberta Education in Edmonton for processing and marking.

## MARKING THE EXAMINATIONS

Markers for the written-response parts of the examinations are nominated by their superintendents and are selected on a proportional basis so that the percentage of markers selected from a geographic area is comparable to the percentage of papers from that area. In order to be selected for marking, a teacher must be currently teaching the subject he or she wishes to mark, must have taught the course for at least two years, and must possess a valid Alberta Permanent Professional teaching certificate.

The written-response parts of the diploma examinations are all marked centrally. The selected classroom teachers are trained in the marking procedures and are supervised during the marking session by the professional staff from the Student Evaluation Branch.

All student and school identification is removed from the papers before the marking so that markers have no means of knowing the source of a paper. Written-response papers in English 30, English 33, Social Studies 30, and Français 30 receive three independent readings and are scored in several categories such as quality of language and expression, thought and detail, organization, etc. Students' scores are then calculated by machine. The median score on each dimension is the score awarded. Papers receive a fourth reading on those dimensions where the original three markers' scores are not sufficiently congruent. Multiple-choice responses are machine scored. During the marking session, each multiple-choice examination is carefully reviewed by a group of at least 20 teachers of the subject under consideration. In this "standard-confirming" review, the teachers assess the appropriateness of the standard of achievement built into the examinations.

## ANALYSING AND REPORTING THE RESULTS

The statistical results of each examination and the recommendations of the standard confirmers are carefully analysed. The Examination Review Committee may be asked to review the results as well. Reports of local results in each subject are prepared for all school jurisdictions.

Individual student results are mailed about one month after the date on which the examinations were administered. Students who are dissatisfied with their results in any subject may request that their examination in that subject be rescored. The fee for rescoring, including GST, is $21.40 per examination. The mark awarded after the rescoring supersedes the initial mark.

For more information, call the Assistant Director of Examination Development for Language Arts and Social Studies or the Assistant Director of Examination Development for Mathematics and Sciences at 427-2948.

# APPENDIX B
# GUIDELINES FOR INTERPRETING AND USING THE RESULTS OF THE DIPLOMA EXAMINATIONS

## USE OF THE REPORTS

In addition to this *Diploma Examinations Program Annual Report*, superintendents and principals receive a confidential report of results achieved by the students in their jurisdictions or schools. Superintendents may also request similar reports for instructional groups within the school jurisdiction.

Educators in each jurisdiction are encouraged to study the examination results carefully and use them to determine the strengths and weaknesses of their program and resources.

The jurisdiction, school, and instructional reports may be used to help

- evaluate educational programs in each subject,
- improve the quality of educational programs, and
- identify the strengths and weaknesses of the individual student, school, and jurisdiction by comparing their results with provincial results.

The reports are *not* intended to be used as the basis for

- evaluating teacher performance, or
- comparing performance between or among schools.

Administrators in each jurisdiction should apply separate locally developed teacher, school, and school system evaluation policies to the tasks of evaluating teacher and school performance.

The information provided in the reports is factual regarding *what* has happened. The interpretation of this information involves many complex considerations of the factors and variables that contribute to achievement.

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## FACTORS LIMITING THE INTERPRETATION OF EXAMINATION RESULTS

Educators who are interpreting diploma examination results must take into account the following limitations:

1. School-awarded marks and diploma examination marks are complementary measures. The purpose of the examination is to provide a common measure of achievement for students throughout the province. School-awarded marks should reflect *all* important aspects of learning in a course, including those that cannot be measured by time-limited paper and pencil tests. Therefore, differences are to be expected between a student's school-awarded mark and that student's diploma examination mark in a subject. Any comparisons of the two marks should be restricted to group statistics for groups of reasonable size and should be made with full knowledge of the differences between the two measures.

2. The differences between provincial results and local results are affected by jurisdiction, school and group size, as well as by other factors.

3. Blended mark distributions *cannot* be directly compared to school-awarded mark distributions or to diploma examination mark distributions.

4. Factors affecting student selection of diploma examination courses vary from school to school. These factors must be considered when comparing school or jurisdiction marks with provincial marks:

   - Some schools may have a limited selection of courses. Students with weak academic records who, in other schools, would have selected nonexamination courses will find it necessary to take diploma examination courses for credits.

   - Some schools may have a policy of encouraging students to challenge any diploma examination course, which results in a higher-than-usual proportion of students taking those courses.

   - Some schools may have a policy of discouraging students with weak academic records from enrolling in particular diploma examination courses, which results in a lower-than-usual proportion of students taking those courses.

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### FACTORS THAT MAY AFFECT STUDENT ACHIEVEMENT

Many factors or variables may contribute to student achievement, some of which are:

1. Environment
   - community environment
   - school environment
   - socioeconomic background
   - family circumstances

2. Student Factors
   - ability
   - attitude
   - motivation
   - aspiration
   - academic background
   - learning style

3. Resources (availability and appropriateness)
   - programs of study
   - curriculum guides
   - resource materials
   - library services
   - current textbooks
   - references

4. Instruction
   - qualifications of teachers
   - teacher experience
   - professional development
   - teacher morale
   - teaching strategies
   - hours of instruction
   - staff turnover
   - amount of homework assigned
   - communication of teacher expectations

## A SYSTEMATIC APPROACH FOR THE EFFECTIVE USE OF DIPLOMA EXAMINATION RESULTS

Diploma examination results can be used constructively as one means of improving the quality of education. A systematic use of these results would include the following steps:

1. Comparing test results for a school or instructional group with the provincial results. Be sure that your comparisons include the

    - total test score,
    - total multiple-choice and written-response scores,
    - subscale scores for multiple-choice and written-response questions (this current administration as well as results over time), and
    - individual multiple-choice and written-response question results.

2. Noting any patterns, anomalies and/or interrelationships in the results.

3. Hypothesizing relationships between your observations and any of the factors above that may have had an effect on achievement.

4. Considering and implementing a plan that will help improve the quality of education for students.

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## AN ADMINISTRATIVE MODEL FOR THE EFFECTIVE USE OF EXAMINATION RESULTS

The following model may be useful for those who wish to develop a constructive system for interpreting diploma examination results. This model is based on work done by Medicine Hat School District #76.

### BASIC PRINCIPLES

1. It is desirable and feasible to ask teachers and school administrators to take responsibility for analysing and using provincial test results.

2. The development of analyses statements and action plans by individual schools is a more productive and positive activity than generalizations made by an external source.

3. There are an identifiable group of factors that should be analysed and commented upon when reviewing the results of each test.

4. Subtest results are often more informative than are total test scores.

5. Generalizations should be based upon long-term data.

6. It is *not* necessarily desirable or productive to compare the marks of schools with one another.

7. Standardized tests measure a core of the program being taught. However, some skills and concepts not measured are worth teaching and learning.

8. Ensuring that there is an alignment between the objectives of the curriculum being taught and the test measures being used will increase the level of students' success.

9. Written reports, follow-up by means of written response, and occasional face-to-face meetings are useful means of ensuring that results are appropriately interpreted and used.

## SUGGESTED CONTENT FOR INTERPRETING INDIVIDUAL SCHOOL RESULTS

1. Subject, name, grade level and administration date of the examination(s)

2. Number of students who wrote the examination

3. Profile of students who wrote the examination:

    - noteworthy individual characteristics
    - general or group characteristics
    - previous performance in other years

4. Retention rates: the number of students enrolled in the grade or subject in the previous two years

5. School performance as compared with district and provincial averages

6. Present school performance as compared with previous years

7. Subtest results: a discussion of how students performed on each of the subtests, possible reasons for results, and recommended action

8. Item analysis: those items where a significant number of students chose a response other than the correct answer; i.e., do the resources being used appropriately present the material being tested?

9. Program emphasis:

    - hours of instruction
    - skills and content emphasized or de-emphasized

10. Instructional practice:

    - methodology
    - curriculum fit
    - resources

11. Program objectives that are not measured by paper and pencil tests but that are worth teaching

12. Recommendations for next year: a listing that describes those actions that should continue to occur, should be enhanced, or should be changed

13. Summary report: general concluding comments regarding the analysis, report, examination, and recommendations

14. Name and signature of teacher or department head and principal

## SUGGESTED PROCEDURES FOR REPORTING

1. Teachers, department heads and/or principals analyse and prepare a written report about each administration of a diploma examination.

2. Principals review and sign the report.

3. The report is shared with central office supervisory personnel.

4. The appropriate central office supervisory personnel prepare a written response to the report and send copies of the response to the teacher, department head, and principal.

5. If possible, all involved staff meet to discuss the report and the response.

6. When necessary or desirable, a more immediate analysis of specific subtest scores may be requested for a specific class, grade, school, or examination.

7. A sampling of the reports will be shared with the Education/Personnel Committee of the board.

8. All reports will be used as an additional means of recognizing the quality of instruction being delivered to students. The analysis will be used to improve the program being offered and maximize the opportunities for students to be successful.

9. Where results are significantly different from those expected by the school staff, consideration should be given to arrange for a program evaluation that would measure things such as the variance between the program being offered and the specifications for an individual examination.

10. The report for the January and June administrations will include comprehensive retention rates for three years of the program.

# APPENDIX C
# STUDENT MARKS AND EXAMINERS' REPORTS
# JANUARY 1991

## January 1991 Examination Administration and January 1990 Final Course Mark*

| DIPLOMA EXAMINATION COURSE | School-Awarded Mark | Diploma Examination Mark | January 1991 Final Blended Mark | January 1990 Final Blended Mark |
|---|---|---|---|---|
| ENGLISH 30 | | | *N* = 9 805 | *N* = 9 241 |
| A (80-100%) | 15.7 | 8.4 | 9.6 | 12.2 |
| B (65-79%) | 41.2 | 36.9 | 41.4 | 40.3 |
| C (50-64%) | 35.9 | 43.0 | 44.2 | 42.8 |
| F (0-49%) | 7.2 | 11.7 | 4.8 | 4.7 |
| Mean | 66.1 | 63.2 | 65.2 | 65.7 |
| Standard Deviation | 12.3 | 11.6 | 10.7 | 11.2 |
| ENGLISH 33 | | | *N* = 3 968 | *N*= 3 941 |
| A (80-100%) | 4.1 | 4.4 | 2.6 | 3.8 |
| B (65-79%) | 32.1 | 41.9 | 37.3 | 38.2 |
| C (50-64%) | 50.9 | 41.7 | 53.3 | 52.0 |
| F (0-49%) | 12.9 | 12.0 | 6.8 | 6.0 |
| Mean | 60.1 | 62.7 | 61.9 | 62.5 |
| Standard Deviation | 11.2 | 11.0 | 9.3 | 9.6 |
| SOCIAL STUDIES 30 | | | *N* = 8 735 | *N* = 8 261 |
| A (80-100%) | 17.3 | 13.8 | 14.0 | 14.1 |
| B (65-79%) | 39.2 | 35.6 | 39.0 | 34.0 |
| C (50-64%) | 37.6 | 34.1 | 40.3 | 42.2 |
| F (0-49%) | 5.9 | 16.5 | 6.7 | 9.7 |
| Mean | 66.7 | 63.8 | 65.6 | 64.3 |
| Standard Deviation | 12.0 | 13.9 | 12.1 | 12.9 |
| FRANÇAIS 30 | | | *N* = 35 | *N* = 57 |
| A (80-100%) | 42.9 | 11.4 | 17.1 | 19.3 |
| B (65-79%) | 48.5 | 45.7 | 60.0 | 66.7 |
| C (50-64%) | 8.6 | 34.3 | 22.9 | 14.0 |
| F (0-49%) | 0.0 | 8.6 | 0.0 | 0.0 |
| Mean | 75.5 | 66.5 | 71.2 | 72.6 |
| Standard Deviation | 9.9 | 11.0 | 8.6 | 8.0 |

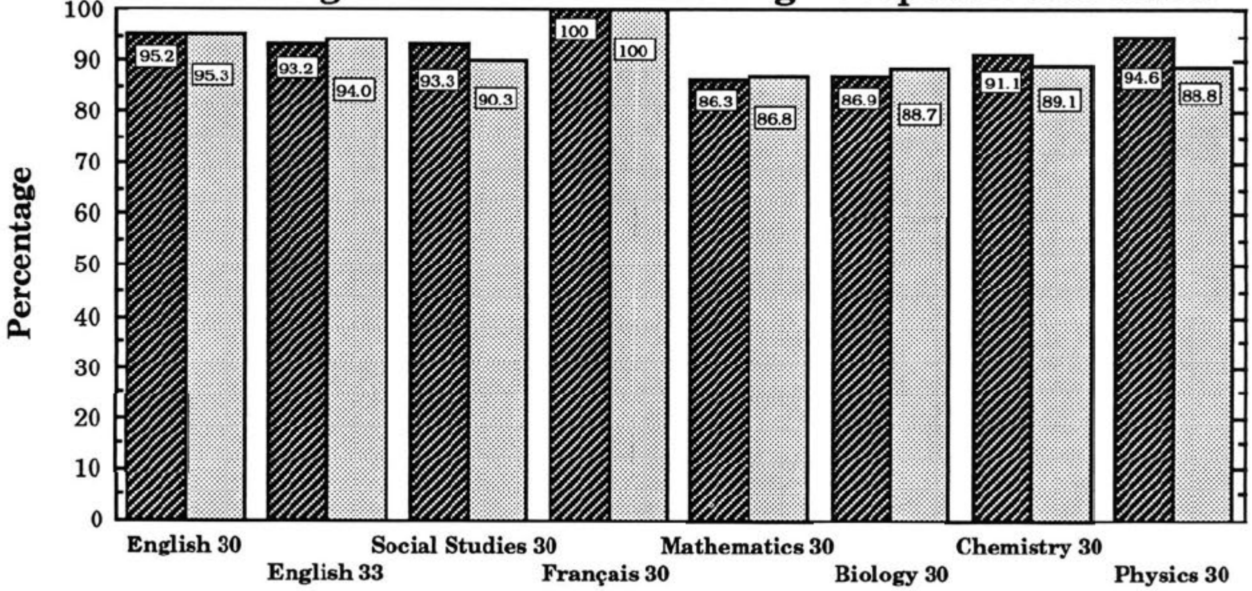
*The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.

(continued )

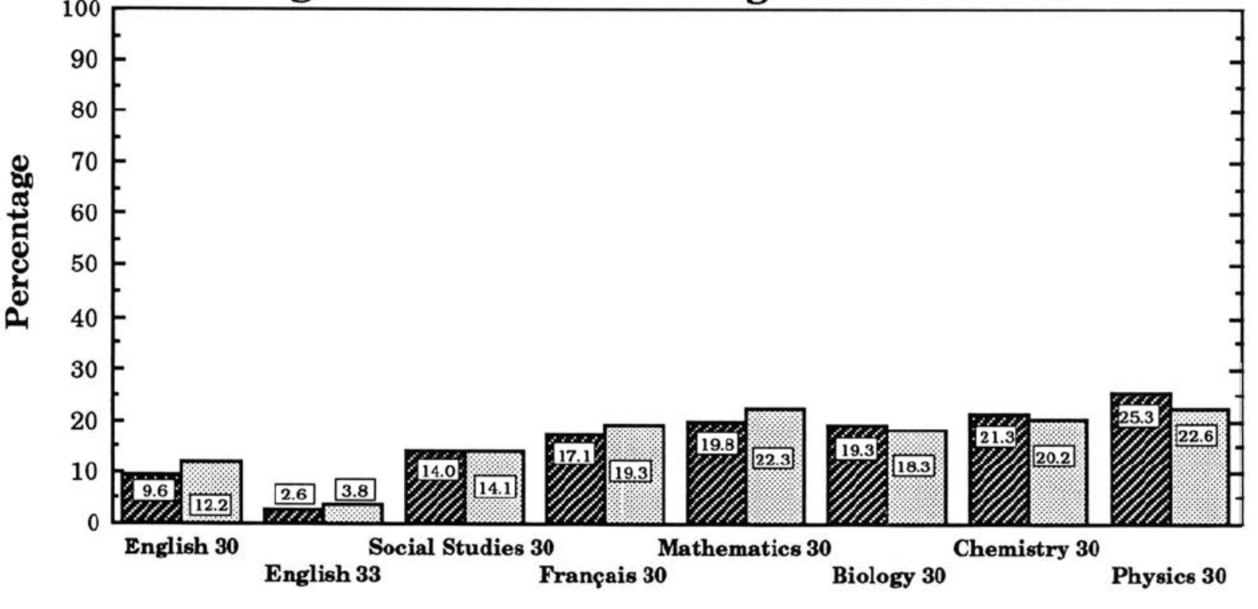
| DIPLOMA EXAMINATION COURSE | School-Awarded Mark | Diploma Examination Mark | January 1991 Final Blended Mark | January 1990 Final Blended Mark |
|---|---|---|---|---|
| MATHEMATICS 30 | | | *N* = 9 232 | *N* = 8 932 |
| A (80-100%) | 25.4 | 18.0 | 19.8 | 22.3 |
| B (65-79%) | 34.3 | 25.6 | 30.3 | 31.2 |
| C (50-64%) | 31.4 | 27.4 | 36.2 | 33.3 |
| F (0-49%) | 8.9 | 29.0 | 13.7 | 13.2 |
| Mean | 68.2 | 61.0 | 65.0 | 66.0 |
| Standard Deviation | 14.6 | 18.2 | 15.5 | 15.7 |
| BIOLOGY 30 | | | *N* = 8 630 | *N* = 8 113 |
| A (80-100%) | 20.4 | 19.3 | 19.3 | 18.3 |
| B (65-79%) | 35.4 | 26.3 | 30.8 | 32.8 |
| C (50-64%) | 36.3 | 28.3 | 36.8 | 37.6 |
| F (0-49%) | 7.9 | 26.1 | 13.1 | 11.3 |
| Mean | 66.8 | 62.2 | 64.9 | 65.3 |
| Standard Deviation | 13.1 | 17.5 | 14.7 | 14.2 |
| CHEMISTRY 30 | | | *N* = 6 987 | *N* = 6 679 |
| A (80-100%) | 22.9 | 21.1 | 21.3 | 20.2 |
| B (65-79%) | 35.9 | 31.6 | 35.6 | 34.6 |
| C (50-64%) | 33.1 | 31.5 | 34.2 | 34.3 |
| F (0-49%) | 8.1 | 15.8 | 8.9 | 10.9 |
| Mean | 67.6 | 65.5 | 67.1 | 66.1 |
| Standard Deviation | 13.7 | 15.7 | 14.0 | 14.3 |
| PHYSICS 30 | | | *N* = 3 128 | *N* = 3 121 |
| A (80-100%) | 28.0 | 24.4 | 25.3 | 22.6 |
| B (65-79%) | 40.6 | 34.4 | 39.3 | 32.6 |
| C (50-64%) | 26.7 | 28.5 | 30.0 | 33.6 |
| F (0-49%) | 4.7 | 12.7 | 5.4 | 11.2 |
| Mean | 70.7 | 67.7 | 69.7 | 66.6 |
| Standard Deviation | 12.9 | 15.2 | 13.2 | 15.0 |

# Diploma Examination Courses
# Final Blended Marks
## January 1991 and January 1990

### Percentage of Students Achieving Acceptable Standard*

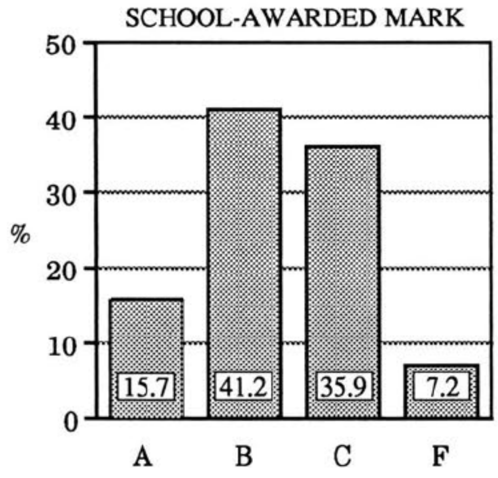


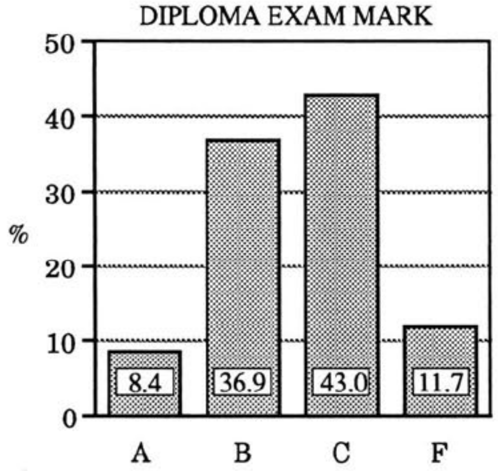
### Percentage of Students Achieving Standard of Excellence*

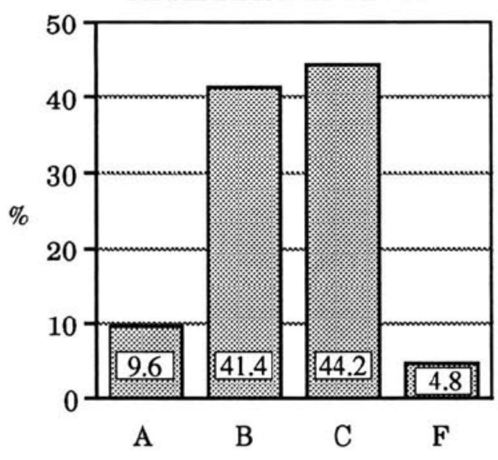


* Acceptable Standard is 50% or higher
Standard of Excellence is 80% or higher

# English 30 Diploma Examination Results
# Examiners' Report, January 1991







The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the January 1991 administration of the English 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

## DESCRIPTION OF THE EXAMINATION

The English 30 Diploma Examination consists of two parts: a written-response section worth 50% and a multiple-choice section worth 50%.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 9 811 students who wrote the January 1991 examination.

- 95.2% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 9.6% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

## PROVINCIAL AVERAGES

- The average school-awarded mark was 66.1%.
- The average diploma examination mark was 63.2%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 65.2%.

## PART A: WRITTEN RESPONSE

Part A: Written Response is written at a different time from Part B: Reading (Multiple Choice) and contributes 50% of the total examination mark. Students are required to complete two writing assignments, each of which assesses a variety of writing and thinking skills.

Readers will find the results most meaningful in the context of the assignments and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. Such work exceeds the pass mark of 50%. The scoring guides that describe proficiency levels are in the *English 30 Diploma Examination Update for 1991*, which is available in all schools.

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each category contributes to the total mark (parts A and B combined), and the percentage of students achieving at the various levels.

### BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

| DESCRIPTION OF THE WRITING ASSIGNMENT | SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) EXCELLENT | (4) PROFICIENT | (3) SATISFACTORY | ( 2) LIMITED | (1) POOR | (0) INS |
| Minor Assignment<br>The student is required to write a personal response to the reading selection provided in the examination. | 1. Thought and Detail | 7.5 | 2.2 | 27.6 | 59.9 | 9.3 | 0.7 | 0.3 |
| | 2. Writing Skills | 7.5 | 2.1 | 28.3 | 58.6 | 9.7 | 1.0 | 0.3 |
| Major Assignment<br>The major assignment maintains a thematic connection to the minor assignment. The student is required to demonstrate an appreciation of literary works studied through a discussion of theme and the literary techniques that support that theme. The student is also required to synthesize thoughts clearly and correctly in writing. | 1. Total Impression | 5.0 | 1.6 | 16.3 | 58.1 | 22.1 | 1.5 | 0.4 |
| | 2. Thought and Detail | 12.5 | 1.9 | 17.2 | 48.3 | 29.7 | 2.5 | 0.4 |
| | 3. Organization | 7.5 | 1.9 | 19.0 | 61.1 | 16.6 | 1.0 | 0.4 |
| | 4. Matters of Choice | 5.0 | 2.4 | 20.4 | 62.1 | 13.5 | 1.3 | 0.4 |
| | 5. Matters of Convention | 5.0 | 3.2 | 26.9 | 54.6 | 13.5 | 1.5 | 0.4 |

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

## EXAMINERS' COMMENTS

### MINOR ASSIGNMENT: Personal Response to Literature

The examination selection, the poem "Envy" by Yevgeny Yevtushenko, focuses on a feeling with which English 30 students can identify. Students found a wealth of stimulating quotations in the poem and many used them effectively in their writing. Students interpreted the assignment focus broadly.

Some students wrote about ideals, whether or not particular ideals were represented in the poem. Some students wrote purely about envy. Others responded to a particular quotation that may or may not have revealed an association with envy or ideals. Most responses related to envy in some way; however, since envy implies an ideal in the broadest sense, these responses were considered by the markers to be appropriate.

Many students achieving the acceptable standard selected a quotation and discussed it appropriately in terms of the influence of an ideal, but the development of the discussion was predictable and supporting details were general.

Students achieving the standard of excellence often recognized the poignancy of the universal human vulnerability expressed in the poem. They often presented concrete support in the form of lively, dramatized descriptions of personal experiences. Some students in this group demonstrated the confidence to take issue with the implications of the selection.

### MAJOR ASSIGNMENT: Literature Composition

Students demonstrated through their responses to the major assignment that they felt comfortable with the requirements of the assignment. Most appeared to have no problem choosing a work or works of literature to illustrate "the influence of an ideal on individual behavior."

Students achieving the acceptable standard frequently presented a clear controlling idea that reflected a basic understanding of the chosen literary work. Supporting details were present, but their connection to the controlling idea was not always established. For example, such students identified a character as having an ideal and being affected by an ideal, but they neglected to explore what the author might be saying about the influence of an ideal on individual behavior.

Students achieving the standard of excellence showed confidence in their use of language and in their ability to interpret the literature insightfully. They were conscientious in both the structuring of their discussions and in the choice of supporting evidence. Such students were usually more precise in limiting their topics. They frequently extended their discussions well beyond the citing of characters affected by ideals, while at the same time managing to strike a balance between the immediate issues of characters and their actions and the broader context of the selection. For example, in discussing the story "Boys and Girls" (a popular choice in January 1991), these students considered the girl's changing outward behavior, her internal nurturing impulses, and the social context within which she is responding.

# PART B: READING (MULTIPLE CHOICE)

## RESULTS

Results are in average raw scores.

Total Part B: 43.4 out of 67

Subtest Results:*

- Course Content
  - Meanings: 19.7 out of 30
  - Critical Response: 14.1 out of 23
  - Human Experience and Values: 9.6 out of 14

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

### EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications. It is important to note that three questions were deleted after a review of question statistics.

| Question Type by Course Content | Question Type by Thinking Skills | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Literal Understanding | Inference and Application | Evaluation | |
| Meanings | 15, 64 | 1, 5, 12, 14, 21, 23, 30, 37, 41, 42,* 45, 46, 47, 50, 53, 55, 63, 67 | 9, 10, 11, 13, 17, 20, 32, 34, 44, 51, 56 | 31 items (22%) |
| Critical Response | 65 | 2, 3,* 4, 6, 22, 24, 26, 27, 28, 29, 38, 43, 48, 49, 66 | 7,* 16, 18, 25, 40, 52, 60, 61, 62 | 25 items (18%) |
| Human Experience and Values | | 8, 19, 36, 39, 54, 57, 59, 68, 69, 70 | 31, 33, 35, 58 | 14 items (10%) |
| Examination Emphasis (%) | 3 items (2%) | 43 items (31%) | 24 items (17%) | 70 items (50%) |

*Note: Questions 3, 7, and 42 were deleted from the examination. See page 5 for a discussion of these questions.

The following table shows question-by-question results and the keyed answers. There is a parallel table in the school and jurisdiction reports showing the percentage of students selecting each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their programs.

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | C | 76.5 | 15 | B | 72.7 | 29 | D | 49.8 | 43 | C | 64.3 | 57 | A | 85.4 |
| 2 | A | 73.2 | 16 | A | 60.8 | 30 | D | 61.9 | 44 | D | 84.4 | 58 | B | 51.5 |
| 3 | – | – | 17 | B | 78.0 | 31 | B | 43.2 | 45 | B | 41.6 | 59 | D | 67.8 |
| 4 | C | 50.4 | 18 | C | 59.9 | 32 | A | 58.7 | 46 | A | 59.5 | 60 | D | 70.6 |
| 5 | A | 58.1 | 19 | B | 81.0 | 33 | C | 74.3 | 47 | D | 54.9 | 61 | C | 78.3 |
| 6 | C | 85.4 | 20 | D | 75.9 | 34 | B | 83.4 | 48 | A | 50.7 | 62 | A | 55.4 |
| 7 | – | – | 21 | D | 47.3 | 35 | D | 78.6 | 49 | D | 61.9 | 63 | D | 62.4 |
| 8 | D | 71.4 | 22 | C | 56.4 | 36 | B | 81.5 | 50 | B | 78.5 | 64 | A | 73.9 |
| 9 | B | 79.1 | 23 | C | 37.0 | 37 | C | 68.9 | 51 | A | 70.4 | 65 | A | 64.9 |
| 10 | D | 86.7 | 24 | A | 66.6 | 38 | C | 50.9 | 52 | C | 55.7 | 66 | B | 60.1 |
| 11 | C | 46.3 | 25 | D | 47.1 | 39 | A | 58.1 | 53 | C | 72.1 | 67 | C | 58.2 |
| 12 | C | 63.5 | 26 | A | 64.1 | 40 | D | 42.2 | 54 | B | 66.8 | 68 | B | 67.9 |
| 13 | B | 66.8 | 27 | A | 59.2 | 41 | A | 74.8 | 55 | C | 79.3 | 69 | D | 59.0 |
| 14 | D | 54.4 | 28 | C | 82.0 | 42 | – | – | 56 | D | 42.5 | 70 | B | 78.3 |

*Difficulty – percentage of students answering the question correctly

Questions 3 and 7, based on the poem "Overcoats," were deleted. In both questions, too many students (30% and 36% respectively) were attracted to alternatives that, on closer examination, were reasonable choices.

Question 42 was also deleted. The wording of the correct answer A, "history reflects human impulse," might have discouraged students from recognizing it as correct and, therefore, encouraged them to choose another alternative (C or D) because it sounded more reasonable.

## EXAMINERS' COMMENTS

During the marking session, a committee of English 30 classroom teachers reviewed the January 1991 English 30 Part B: Reading (Multiple Choice) examination to determine whether the standards embedded in the readings and the questions were appropriate and fair. The committee members concurred that the January 1991 examination set a reasonable standard of achievement for graduating English 30 students. The teachers also stated that the examination would clearly distinguish between high-achieving and low-achieving students.

Students' performance on the Part B section confirmed the teachers' expectations: performance was generally satisfactory, and results demonstrated that students who achieved high total scores (Part A: Written Response plus Part B: Reading) were those who achieved the highest scores on Part B: Reading (Multiple Choice). The results also indicate that these students consistently employed their skills of close reading and confirmed their ideas by re-examining the text. These students appear to have read the questions and the alternative answers very carefully.

The table below relates to three questions selected from the examination. For each question, three statistical references are given: the percentage of all students writing the examination who chose the correct answer, the percentage of students achieving the STANDARD OF EXCELLENCE (80% or higher, or A, on the whole examination) who chose the correct answer, and the percentage of students achieving the ACCEPTABLE STANDARD (but not receiving marks higher than 64%, or C, on the whole examination) who chose the correct answer. The comments following the table discuss some of the decisions that students made and some of the skills that they used to answer correctly.

Percentage of Students Correctly Answering Selected Questions
(Parts A and B Combined )

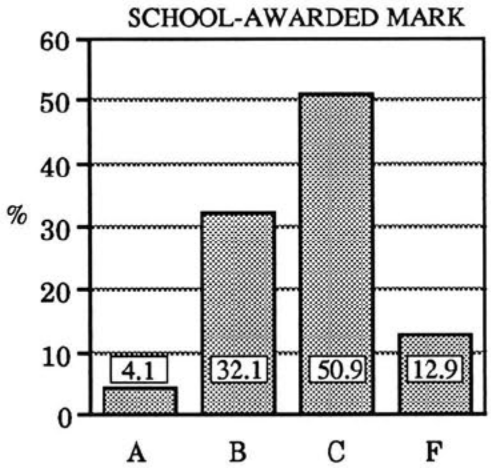
| Student Group | Question Number | | |
|---|---|---|---|
| | 22 | 23 | 45 |
| All students | 56.4 | 37.0 | 41.6 |
| Students achieving the Standard of Excellence (80% or higher, or A) | 78.5 | 71.3 | 75.2 |
| Students achieving the Acceptable Standard who received marks between 50% and 64%, or C | 50.9 | 26.1 | 31.7 |

## EXAMINERS' COMMENTS (continued)

| Questions | Comments |
|---|---|
| **22.** The image of "the stubborn intervals that try to force a song apart" (lines 9-10) serves to parallel the<br>**A.** son's innocence and his mother's sense of guilt<br>**B.** effect of the mother's fear on her son's despair<br>* **C.** effect of the son's sobs on the sounds of merrymaking<br>**D.** mother's sense of responsibility to her son and to her guests | Question 22 makes several demands on the students. They must refer to the context of the cited text to understand the image. They must infer meaning and then apply their knowledge of parallelism as they infer meaning from the alternatives. Those students who referred to the footnote indication at line 9 would have become aware that the "interval" in the question was a reference to a difference in "sounds" and would therefore have responded to the difference in sounds described in alternative C. Students found this to be a fairly difficult question with only 56.4% choosing C, the correct answer. Of the group achieving the standard of excellence on the whole examination (parts A and B combined), 78.5% answered correctly. Of students who achieved marks between 50% and 64% (a letter grade of C) on the whole examination, only 50.9% chose C, the correct alternative. |
| **23.** The mother refers to her reasons for wearing the T-shirt as "all that corny truth" (line 17) because<br>**A.** she is amused by the naiveté of her son's choice<br>**B.** she perceives the superficiality of her son's gesture<br>* **C.** her son's perceptions cause these reasons to be discounted<br>**D.** her son's responses cause her to adopt a pleasing attitude | Question 23 proved to be even more demanding than question 22. Again, students were required to refer to the poetic context of not only line 17 but lines 1 to 17, to remind themselves of the "reasons" that contribute to "all that corny truth." To make the correct choice, students must then read to line 25 to determine what the "son's perceptions" are. Only 37.0% of all students chose the correct answer. Of the students who achieved the standard of excellence on the whole examination (parts A and B combined), 71.3% answered correctly. Of those who achieved marks between 50% and 64% (a letter grade of C) on the whole examination, only 26.1% chose the correct alternative. In this same group, 28.6% of those students achieving marks between 50% and 64% chose alternative B, and 30.7% chose alternative D. It would seem that these students did not recognize the necessity of returning to the context to verify their choice. |
| **45.** Troilus' use of the word "dread" (line 19) in referring to the king reflects the Elizabethan view of the<br>**A.** unmerited authority of kingship<br>* **B.** inherent reverence of kingship<br>**C.** right of a king to punish his sons<br>**D.** unanimity between kings and princes | Question 45 required that students be familiar not only with Shakespearian text, but also with the Elizabethan world view and its "chain of being," in which the King ranks second only to God. The question proved difficult with only 41.6% of all students selecting the correct answer, B. Without an awareness of the Elizabethan context, students would have been very inclined to see "dread" as suggesting "unmerited authority" (A) or fearsomeness. In fact, 39.8% of all students did so. Of those achieving the standard of excellence on the whole examination (parts A and B combined), 75.2% answered correctly. Of those students who achieved marks between 50% and 64% (a letter grade of C), only 31.7% chose alternative B. |

For further information, contact Gail Gates, Tom Dunn, or Elana Scraba at the Student Evaluation Branch, 427-2948.

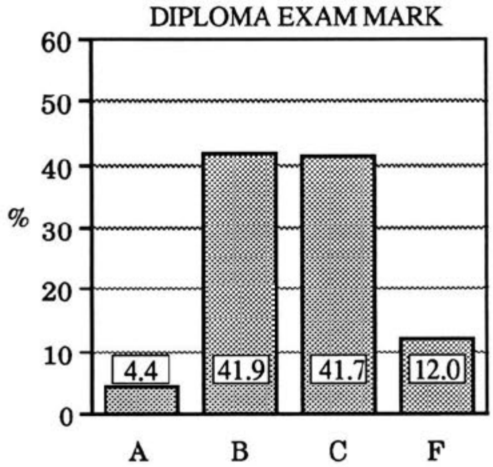
# English 33 Diploma Examination Results
# Examiners' Report, January 1991


SCHOOL-AWARDED MARK

The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the January 1991 administration of the English 33 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

## DESCRIPTION OF THE EXAMINATION

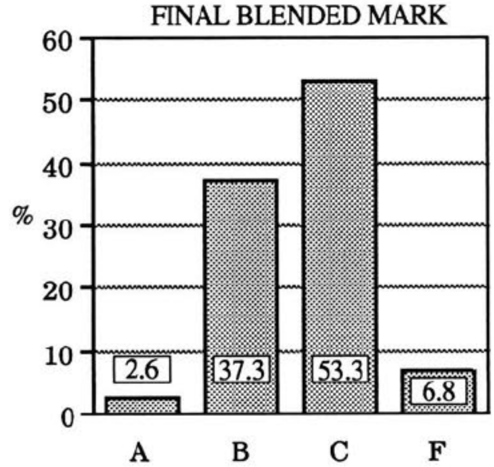
The English 33 Diploma Examination consists of two parts: a written-response section worth 50% and a multiple-choice section worth 50%.


DIPLOMA EXAM MARK

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 3 968 students who wrote the January 1991 examination.

- 93.2% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 2.6% of these students achieved the standard of excellence (a final blended mark of 80% or higher).


FINAL BLENDED MARK

## PROVINCIAL AVERAGES

- The average school-awarded mark was 60.1%.
- The average diploma examination mark was 62.7%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 61.9%.

## PART A: WRITTEN RESPONSE

Part A: Written Response is written at a different time from Part B: Reading (Multiple Choice) and contributes 50% of the total examination mark. Students are required to complete three writing assignments, each of which assesses a variety of writing and thinking skills.

Readers will find the results most meaningful in the context of the assignments and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. Such work exceeds the pass mark of 50%. The scoring guides that describe proficiency levels are in the *English 33 Diploma Examination Update for 1991*, which is available in all schools.

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each category contributes to the total mark (parts A and B combined), and the percentage of students achieving at the various levels.

### BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

| DESCRIPTION OF THE WRITING ASSIGNMENT | SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) EXCELLENT | (4) PROFICIENT | (3) SATISFACTORY | (2) LIMITED | (1) POOR | (0) INS |
| Personal Response to Literature<br>The student is required to discuss an aspect of literature from a personal perspective. | 1. Thought and Detail | 10.0 | 2.0 | 23.4 | 53.3 | 19.2 | 1.6 | 0.4 |
| | 2. Organization | 5.0 | 1.2 | 20.1 | 62.7 | 14.5 | 1.0 | 0.4 |
| | 3. Matters of Choice | 5.0 | 2.0 | 22.2 | 62.7 | 11.5 | 1.3 | 0.4 |
| | 4. Matters of Convention | 5.0 | 2.5 | 28.7 | 53.7 | 12.9 | 1.8 | 0.4 |
| Functional Writing<br>The assignment is functional in nature. The student is required to write about a given situation. | 1. Thought and Detail | 10.0 | 1.3 | 19.0 | 68.0 | 10.7 | 0.5 | 0.5 |
| | 2. Organization | 2.5 | 1.5 | 19.1 | 66.8 | 11.8 | 0.3 | 0.5 |
| | 3. Writing Skills | 2.5 | 1.8 | 20.8 | 62.1 | 13.7 | 1.1 | 0.5 |
| Response to Visual Communication<br>The writing assignment is connected to one or more photographs and/or cartoons. The student is required to write about main ideas and techniques of visual communication. | 1. Thought and Detail | 5.0 | 1.0 | 13.9 | 54.2 | 27.9 | 1.8 | 1.2 |
| | 2. Organization | 2.5 | 1.0 | 11.4 | 61.5 | 23.6 | 1.3 | 1.2 |
| | 3. Writing Skills | 2.5 | 1.5 | 16.9 | 63.0 | 16.0 | 1.5 | 1.2 |

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

## EXAMINERS' COMMENTS

On Part A: Written Response, students are expected to express their ideas clearly, thoughtfully, and coherently, and to use supporting details to develop these ideas. Students should also demonstrate effective diction and syntax, and control of grammar and mechanics. Most students responded satisfactorily to all three writing assignments.

In answering the PERSONAL RESPONSE TO LITERATURE assignment, students demonstrated a clear understanding of the selection, an excerpt from "Leaf by Niggle" written by J. R. R. Tolkien. A variety of themes were chosen for discussion by the students, such as "Individuals are important when they can offer something to society," "The importance of the individual to society is a factor in recognition of self-worth," "Each of us is important: we can contribute to society through work, friendships and family." These themes were reflective of the students' warmth and awareness of human values. It was encouraging to note an improvement in planning in the students' work, and a parallel, perhaps resultant, improvement in organization, particularly in the use of transitions and the arrangement of ideas.

Many students achieving the acceptable standard summarized the selection, focusing on the differing views of the characters in the selection. Students achieving the standard of excellence understood, and responded to, the subtleties of the selection, providing insightful discussion of values and ideas. The majority of students gave a personal anecdotal response to the assignment. Students used quotations from the selection judiciously and, in many instances, thoughtfully.

Most students produced satisfactory work on the FUNCTIONAL WRITING assignment, which required students to write a letter of request. Most students used a polite tone; some students attempted a convincing and businesslike tone. The best letters were those that contained specific, relevant, and credible details. Many students achieving the acceptable standard used the information supplied in the assignment without elaboration. Less successful students omitted some of the significant details provided in the assignment. Students achieving the standard of excellence tended to provide additional plausible details; many of these students organized the information in original ways.

The level of achievement on the RESPONSE TO VISUAL COMMUNICATION assignment continues to improve dramatically. This assignment evokes ever better responses. The photograph used in the January 1991 examination depicted a Japanese grandmother and grandchild, carrying similar baskets. Their hands are clasped; there is evidence of a bonding. The photograph, which was deemed particularly appropriate by markers, elicited a variety of topics in the minds of students such as, "Contrasts between youth and age," "Importance of family relationships," "Handing down of traditions," "Technology versus tradition." Many students who discussed photographic choices or techniques did so in a more articulate and intelligent manner than have students in the past.

Students achieving the standard of excellence presented an insightful interpretation of the photograph in an effective, generalized idea. These students explained how the details in the photograph and the photographer's choices reinforced this idea.

Students achieving the acceptable standard tended to interpret the photograph in a conventional way, using generalized details for support. Some of the less successful students used the photograph as a springboard for their own imaginative narratives rather than analysing its message and visual impact.

# PART B: READING (MULTIPLE CHOICE)

## RESULTS

Results are in average raw scores.

Total Part B: 44.9 out of 70

Subtest Results:*

- Course Content
  - Main Ideas/Details: 16.6 out of 25
  - Relationship Between Form and Content: 11.5 out of 18
  - Human Experience and Values: 13.0 out of 20
  - Knowledge of Revision and Editing: 3.8 out of 7

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

### EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications.

| Question Type by Course Content | Question Type by Thinking Skills | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Literal Understanding | Inference and Application | Evaluation | |
| Main Ideas/ Details | 27, 34, 35, 47, 53 | 2, 3, 4, 5, 6, 10, 12, 14, 19, 32, 37, 46, 57, 61, 62, 67 | 8, 17, 36, 38 | 25 items (18%) |
| Relationship Between Form and Content | 11, 48 | 16, 22, 23, 28, 49, 50, 55, 65, 66, 68, 69, 70 | 9, 13, 30, 51 | 18 items (13%) |
| Human Experience and Values | | 1, 18, 20, 21, 24, 25, 26, 29, 31, 52, 54, 58, 59, 63, 64 | 7, 15, 33, 56, 60 | 20 items (14%) |
| Knowledge of Revision and Editing | 40, 44 | 39, 41, 42, 45 | 43 | 7 items (5%) |
| Examination Emphasis (%) | 9 items (6%) | 47 items (34%) | 14 items (10%) | 70 items (50%) |

The following table shows question-by-question results and the keyed answers. There is a parallel table in the school and jurisdiction reports showing the percentage of students selecting each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their programs.

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 30.3 | 15 | C | 81.6 | 29 | C | 89.3 | 43 | C | 54.2 | 57 | B | 61.8 |
| 2 | C | 88.7 | 16 | B | 76.4 | 30 | B | 75.1 | 44 | C | 47.8 | 58 | A | 70.3 |
| 3 | D | 69.4 | 17 | A | 80.7 | 31 | A | 61.1 | 45 | B | 58.8 | 59 | C | 38.8 |
| 4 | B | 64.6 | 18 | C | 57.7 | 32 | D | 77.6 | 46 | A | 42.7 | 60 | A | 53.5 |
| 5 | D | 60.2 | 19 | D | 92.5 | 33 | D | 47.4 | 47 | D | 51.3 | 61 | D | 50.7 |
| 6 | A | 69.3 | 20 | D | 63.6 | 34 | C | 56.0 | 48 | A | 75.6 | 62 | B | 68.2 |
| 7 | A | 84.5 | 21 | C | 70.2 | 35 | D | 66.7 | 49 | A | 71.7 | 63 | C | 51.0 |
| 8 | D | 78.8 | 22 | C | 87.0 | 36 | B | 42.9 | 50 | B | 55.7 | 64 | C | 73.8 |
| 9 | C | 65.4 | 23 | A | 76.0 | 37 | A | 60.7 | 51 | D | 55.8 | 65 | A | 46.4 |
| 10 | D | 78.0 | 24 | C | 65.7 | 38 | D | 32.7 | 52 | C | 73.9 | 66 | D | 40.4 |
| 11 | A | 76.2 | 25 | B | 89.6 | 39 | B | 48.7 | 53 | D | 65.1 | 67 | B | 58.4 |
| 12 | C | 76.9 | 26 | A | 81.8 | 40 | C | 50.8 | 54 | C | 43.7 | 68 | D | 41.9 |
| 13 | B | 45.3 | 27 | C | 93.3 | 41 | B | 50.5 | 55 | A | 43.0 | 69 | B | 61.0 |
| 14 | B | 73.8 | 28 | D | 83.1 | 42 | B | 68.9 | 56 | A | 68.2 | 70 | A | 75.8 |

*Difficulty – percentage of students answering the question correctly

## EXAMINERS' COMMENTS

Some teachers were concerned that questions dealing with terminology would prove difficult for the students. In fact, the students did very well on the majority of these questions. Students receiving credit in English 33 are expected to have developed some understanding of the technical aspects of literature (a minimal understanding of terms is a curricular goal in elementary and junior high Language Arts as well).

The table below relates to four questions selected from the examination. For each question, three statistical references are given: the percentage of all students writing the examination who chose the correct answer, the percentage of students achieving the STANDARD OF EXCELLENCE (80% or higher, or A, on the whole examination) who chose the correct answer, and the percentage of students achieving the ACCEPTABLE STANDARD (but not receiving marks higher than 64%, or C, on the whole examination) who chose the correct answer. The comments following the table discuss some of the decisions that students made and some of the skills that they used to answer correctly.

Percentage of Students Correctly Answering Selected Questions
(Parts A and B Combined )

| Student Group | Question Number | | | |
|---|---|---|---|---|
| | 11 | 12 | 16 | 38 |
| All students | 76.2 | 76.9 | 76.4 | 32.7 |
| Students achieving the Standard of Excellence (80% or higher, or A) | 93.8 | 90.9 | 87.5 | 54.0 |
| Students achieving the Acceptable Standard who received marks between 50% and 64%, or C | 71.8 | 73.4 | 75.1 | 27.9 |

| Questions | Comments |
|---|---|
| **11.** Which phrase contains a simile?<br>***A.** "on golden legs slim as dream things" (line 6)<br>**B.** "swam with their heads high" (line 10)<br>**C.** "With jagged ivory bones where wings should be" (line 12)<br>**D.** "On silver wings leaving these broken two" (line 16) | Some teachers felt that question 11 was an easy question; others, however, were concerned that, since this question requires specific teaching of terminology, some students would not do well. (Figurative language is on both the elementary and junior high curricula.)<br>The question was very easy (76.2% of all students responded correctly). Students who achieved the standard of excellence did very well on this question: 93.8% answered correctly. Those who achieved marks between 50% and 64% also did quite well: 71.8% answered correctly. Of those students who failed the examination (a score of 49% or less), 54.9% responded correctly. |

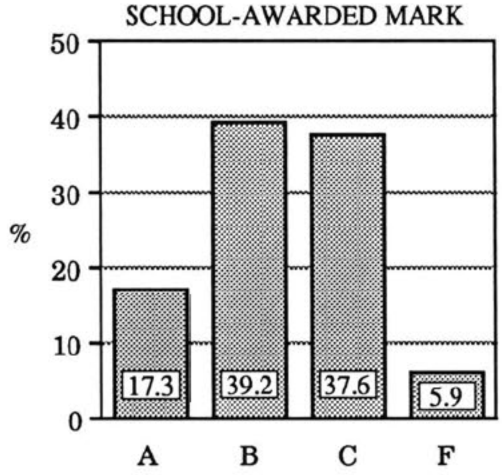
## EXAMINERS' COMMENTS (continued)

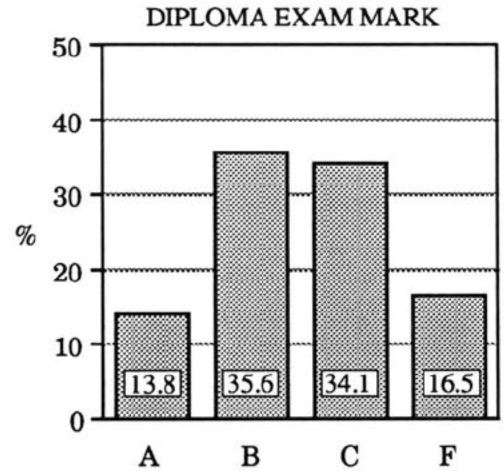
| Questions | Comments |
|---|---|
| **12.** The statement "The cries went out one day" (line 17) suggests that the<br>**A.** speaker hoped that the wounded plovers had migrated<br>**B.** time for the plovers to migrate had passed<br>***C.** wounded plovers had died<br>**D.** speaker stopped listening | Question 12 required students to interpret an abstract statement. Some teachers felt that the question would be difficult for those students "who do not think beyond the literal level." It is reasonable to demand that students "reach" a little. Students were well prepared to answer this question: 76.9% chose the correct alternative. Of the students achieving the standard of excellence, 90.9% answered correctly; of those achieving marks between 50% and 64%, 73.4% answered correctly; 48.7% of the students who failed the examination responded correctly. |
| **16.** In the statement "These walls are made of paper" (line 7), Don uses<br>**A.** allusion<br>***B.** exaggeration<br>**C.** understatement<br>**D.** personification | Some teachers believed that question 16 would be very difficult; however, the students did very well (76.4% answered correctly). Of the students achieving the standard of excellence, 87.5% answered correctly; of those achieving marks between 50% and 64%, 75.1% answered correctly. Several teachers speculated that students would be drawn strongly to alternative A, "allusion," partly because allusion is an important-looking word. However, only 8.5% of the students achieving the standard of excellence chose this alternative; 15.9% of the students who failed the examination selected it. |
| **38.** The **UNDERLYING** message of the article is that<br>**A.** microwave ovens are dangerous<br>**B.** heavily processed foods have poor taste and texture<br>**C.** the food industry is creating many new products for microwave ovens<br>***D.** traditional cooking is preferable to microwave cooking | Students found question 38 very difficult (32.7% answered correctly). Of the students achieving the standard of excellence, 54.0% answered correctly; of those achieving marks between 50% and 64%, 27.9% answered correctly; only 20.5% of the failing students answered correctly. Many teachers believed that students would find this question extremely difficult, noting that the students would likely choose one of the *explicit* messages of the passage, alternative A, "microwave ovens are dangerous," rather than the *underlying* message, alternative D, "traditional cooking is preferable to microwave cooking." This prediction was in fact borne out by the results: 51.4% of the students achieving marks between 50% and 64% chose alternative A; 37.0% of the students who failed the examination selected A.<br>The results of this question clearly indicate that students must apply thinking skills rather than giving only superficial consideration to the task set by the question. It is important that students read the questions and alternatives very carefully and that they check the text to confirm their choice of answer. |

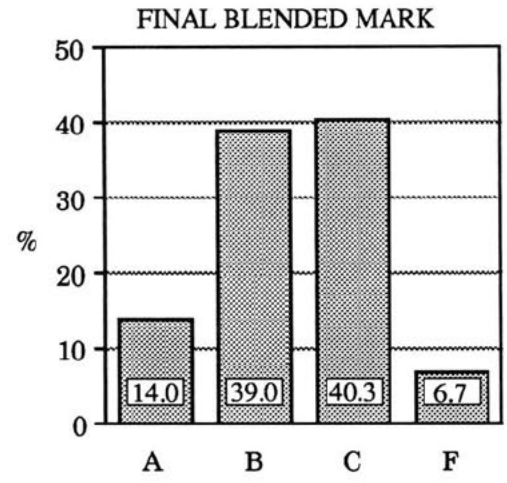
Students who achieved the standard of excellence on the examination as a whole demonstrated that they consistently read the selections and all parts of each question carefully and thoughtfully. Results indicate that students who verify their answers by reading the text carefully are usually successful.

For further information, contact Gloria Malick, Tom Dunn, or Elana Scraba at the Student Evaluation Branch, 427-2948.

# Social Studies 30 Diploma Examination Results
# Examiners' Report, January 1991







The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the January 1991 administration of the Social Studies 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

## DESCRIPTION OF THE EXAMINATION

The Social Studies 30 Diploma Examination consists of two parts: a multiple-choice section worth 70% and a written-response section worth 30% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 8 745 students who wrote the January 1991 examination.

- 93.3% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 14.0% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

## PROVINCIAL AVERAGES

- The average school-awarded mark was 66.7%.
- The average diploma examination mark was 63.8%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 65.6%.

# PART A: MULTIPLE CHOICE

## EXAMINATION BLUEPRINT

Part A: Multiple Choice has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area (topic) being tested and according to the knowledge and skill objective called forth by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications. It is important to note that one multiple-choice question was deleted after a review of question statistics.

All questions on the diploma examination require students to demonstrate knowledge of social studies content and to apply social studies skills to that knowledge base. The reporting categories below define the general types of the questions that appear on the examination and the categories for which information will be reported.

| | | QUESTION CLASSIFICATION BY TOPIC | | QUESTION TOTAL |
|---|---|---|---|---|
| | | TOPIC A: POLITICAL AND ECONOMIC SYSTEMS | TOPIC B: GLOBAL INTERACTION IN THE 20TH CENTURY | |
| | | Knowledge and application of facts, concepts, and generalizations related to the world's political and economic systems as outlined in the *Program of Studies*. | Knowledge and application of facts, concepts, and generalizations related to the interaction among nations since 1918 as outlined in the *Program of Studies*. | |
| QUESTION CLASSIFICATION BY KNOWLEDGE AND SKILL OBJECTIVES | COMPREHENSION OF INFORMATION AND IDEAS<br>These questions require students to demonstrate their knowledge and understanding of generalizations, key concepts, and related facts and social studies content. | 1, 2, 4, 5, 9, 11, 15, 16,* 28, 29, 34 | 43, 49, 51, 54, 57, 64, 65, 66, 67, 68, 69, 70 | 23 |
| | INTERPRETATION AND ANALYSIS OF INFORMATION AND IDEAS<br>These questions require students to demonstrate and apply their knowledge of social studies content by interpreting and analysing information and ideas. | 3, 6, 7, 8, 10, 13, 14, 17, 23, 24, 26, 27 | 36, 37, 39, 40, 42, 46, 47, 55, 56, 58, 61, 63 | 24 |
| | SYNTHESIS AND EVALUATION OF INFORMATION AND IDEAS<br>These questions require students to demonstrate and apply their knowledge of social studies content by synthesizing information and ideas and evaluating their accuracy and worth. | 12, 18, 19, 20, 21, 22, 25, 30, 31, 32, 33, 35 | 38, 41, 44, 45, 48, 50, 52, 53, 59, 60, 62 | 23 |
| | QUESTION TOTAL | 35 | 35 | 70 |

*Question 16 was deleted because some high-achieving students were led to an alternative which, on closer inspection, contained an element of truth.

## RESULTS

Results are in average raw scores. Total Part A: 45.7 out of 69. Subtest results for Part A:\*

- by Topic
  - Political and Economic Systems: 22.2 out of 34
  - Global Interaction States: 23.5 out of 35

- by Knowledge and Skill Objectives
  - Comprehension of Information and Ideas: 14.8 out of 22
  - Interpretation and Analysis of Information and Ideas: 17.0 out of 24
  - Synthesis and Evaluation of Information and Ideas: 13.9 out of 23

* Readers are cautioned NOT to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

The following table shows question-by-question results and the keyed answers. There is a parallel table in the school and jurisdiction reports that teachers can use to determine areas of strength and weakness in the achievement of their students relative to the province as a whole. The table in the school and jurisdiction reports shows the percentage of students selecting each alternative. Comparison of school results with provincial results may show areas of strength and weakness in instructional programs.

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 81.6 | 15 | B | 52.5 | 29 | A | 53.1 | 43 | D | 48.5 | 57 | B | 58.8 |
| 2 | C | 74.4 | 16 | – | – | 30 | A | 34.6 | 44 | D | 80.4 | 58 | D | 69.2 |
| 3 | D | 90.6 | 17 | C | 71.7 | 31 | D | 42.5 | 45 | C | 59.4 | 59 | C | 84.1 |
| 4 | A | 77.1 | 18 | B | 56.8 | 32 | C | 66.5 | 46 | A | 65.0 | 60 | B | 70.4 |
| 5 | C | 78.8 | 19 | C | 59.9 | 33 | A | 53.1 | 47 | D | 70.8 | 61 | A | 82.7 |
| 6 | C | 82.5 | 20 | A | 57.4 | 34 | B | 63.5 | 48 | B | 53.0 | 62 | A | 79.8 |
| 7 | D | 82.0 | 21 | D | 36.4 | 35 | B | 65.8 | 49 | D | 62.9 | 63 | C | 65.9 |
| 8 | A | 48.5 | 22 | C | 41.6 | 36 | C | 85.4 | 50 | D | 43.6 | 64 | D | 58.9 |
| 9 | C | 69.4 | 23 | C | 73.3 | 37 | A | 54.6 | 51 | C | 55.8 | 65 | A | 77.2 |
| 10 | D | 52.4 | 24 | A | 83.7 | 38 | D | 62.3 | 52 | C | 51.8 | 66 | A | 70.9 |
| 11 | B | 65.8 | 25 | B | 84.0 | 39 | B | 70.0 | 53 | D | 57.7 | 67 | B | 77.2 |
| 12 | A | 75.9 | 26 | A | 71.9 | 40 | B | 62.1 | 54 | D | 70.2 | 68 | D | 81.4 |
| 13 | B | 58.6 | 27 | D | 71.9 | 41 | A | 68.7 | 55 | A | 62.0 | 69 | B | 68.3 |
| 14 | C | 79.0 | 28 | D | 64.0 | 42 | C | 84.0 | 56 | C | 64.7 | 70 | B | 69.6 |

*Difficulty – percentage of students answering the question correctly

## EXAMINERS' COMMENTS

The multiple-choice section of the examination requires students to move beyond the simple recall of information and apply their knowledge and thinking skills. Students must demonstrate that they understand social studies concepts; comprehend historical, political, and economic relationships; and can interpret and evaluate social studies information and ideas.

The table below relates to four questions selected from the examination. For each question, three statistical references are given: the percentage of students writing the examination who chose the correct answer, the percentage of students achieving the STANDARD OF EXCELLENCE (80% or higher, or A, on the whole examination) who chose the correct answer, and the percentage of students achieving the ACCEPTABLE STANDARD (but not receiving marks higher than 64%, or C, on the whole examination) who chose the correct answer. The comments on pages 4 and 5 discuss some of the decisions that students made and some of the skills they used to answer correctly.

Percentage of Students Correctly Answering Selected Questions
(Parts A and B Combined )

| Student Group | Question Number | | | |
|---|---|---|---|---|
| | 18 | 20 | 47 | 48 |
| All students | 56.8 | 57.4 | 70.8 | 53.0 |
| Students achieving the Standard of Excellence ( 80% or higher, or A) | 80.3 | 85.1 | 95.0 | 78.4 |
| Students achieving the Acceptable Standard who received marks between 50% and 64%, or C | 50.5 | 48.4 | 64.0 | 45.0 |

## Questions

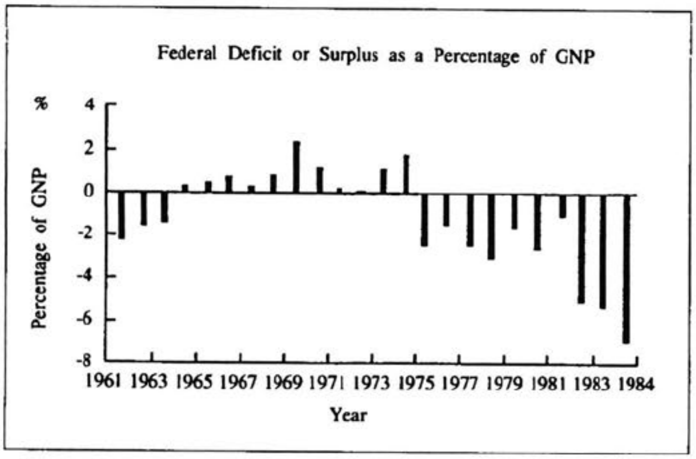
### SOURCE I

> Projected federal deficits of $35 to $40 billion each year until the end of the decade would seriously harm Canada's growth prospects. By increasing the federal public debt faster than the economy is growing, these large deficits would absorb an increasing share of Canadians' savings, reducing the amount available for the private investment needed for growth.
>
> — Edward A. Carmichael,
> *Policy Review and Outlook, 1985: A Time for Decisions*

### SOURCE II

> Public opinion often tends to judge any deficit as evidence of economic trouble and sometimes as a firm proof of fiscal irresponsibility. Government deficits are inherently neither bad nor good. What matters about deficits is their impact on people.
>
> — Economic Council of Canada,
> *Seventeenth Annual Review*, 1980

### SOURCE III



–from *Canadian Macroeconomics*

**18.** The speaker's underlying assumption in source I is that

- **A.** fiscal restraint is the enemy of business expansion
- ***B.** economic well-being is achieved by investment growth
- **C.** deregulating the economy encourages a huge public debt
- **D.** economic growth is encouraged by a more equitable society

**20.** In source III, the trend from 1975 to 1984 **most** likely resulted from government

- ***A.** spending to counter recessionary pressures
- **B.** cutbacks on regional transfer payments
- **C.** investment in expanding foreign businesses
- **D.** fiscal restraint to prevent inflationary pressures

## Comments

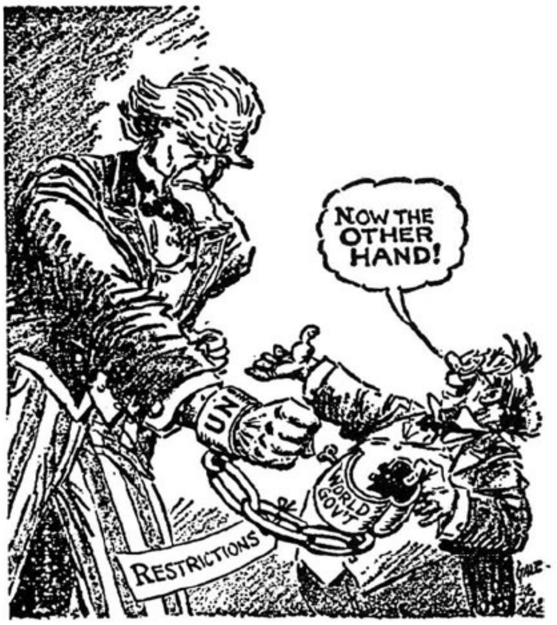
Questions 18 and 20 were part of a group of five questions. Each question required students to apply their understanding of economic theory to a verbal and graphic description of a specific Canadian economic situation. Students were required to use their interpretative and analytical skills to arrive at the correct answer.

Question 18 was based on a quotation expressing an opinion regarding Canada's federal deficit. Students were asked to identify a basic assumption underlying the viewpoint expressed by the speaker. Of the students achieving the standard of excellence, 80.3% were able to correctly identify the context of the author's statement, and only 50.5% of the students achieving total examination scores between 50% and 64% were able to do so. Many students (43.2%) did not seem to understand the author's commitment to investment growth.

Question 20 required students to recognize a cause-and-effect relationship associated with an economic trend indicated in a graph. Students had to observe a growing federal deficit shown in the graph. They then had to apply their knowledge of certain economic principles to identify the most probable cause for the trend. Many students had difficulty understanding the relationship between a trend and its cause. However, 85.1% of the students who achieved the standard of excellence chose the correct answer. Only 48.4% of those who achieved total examination scores between 50% and 64% answered correctly.

## EXAMINERS' COMMENTS (continued)

### Questions



— from *Viewpoints in World History*

**47.** The American cartoonist displays a bias favoring national

**A.** unity
**B.** expansion
**C.** prosperity
***D.** sovereignty

**48.** If a course of action acceptable to the cartoonist were followed, the American government, in relation to the United Nations, would most likely adopt a foreign policy of

**A.** expansionism
* **B.** isolationism
**C.** global security
**D.** regional co-operation

### Comments

Questions 47 and 48 were based on a political cartoon that required careful interpretation, analysis, and synthesis by the students. The cartoon expressed a definite view regarding the relationship of the U.S.A. to the United Nations.

Question 47 required students to use critical thinking skills in determining the bias of the cartoonist. This involved a critical analysis of the scene depicted in the cartoon, which clearly showed the displeasure of Uncle Sam (the U. S. A.) at being shackled by the UN, with the consequent loss of freedom. Many students correctly identified the cartoonist's bias. In fact, 95% of the students who achieved the standard of excellence on the total examination correctly identified the cartoonist's bias, as did 64% of the students whose total examination scores were between 50% and 64%.

Question 48 asked students to predict the possible foreign policy implications for the American government in adopting the viewpoint expressed in the cartoon. Based on the context of the cartoon, the students were expected to predict a possible course of action by applying their knowledge and understanding of a number of basic social studies concepts relating to foreign policy alternatives. Students found this a difficult question with close to half the total student population choosing incorrect responses. However, 78.4% of the students achieving the standard of excellence answered correctly.

## PART B: WRITTEN RESPONSE

The results for the written-response section of the Social Studies 30 Diploma Examination follow on page 6. The results are tabulated according to the percentage of students achieving at each level (1 to 5) in each of the scoring categories. Each scoring category assesses somewhat different skills; consequently, individual student's scores are likely to vary from one category to another. Those students who achieve at or above the standard of excellence (80%) on the written-response section will have scores of (4) PROFICIENT or (5) EXCEPTIONAL on all scoring categories. Students just meeting the acceptable standard (50%) on the written-response section will have scores of (3) SATISFACTORY on some scoring categories but will be producing (2) LIMITED work on other categories. Students who produce (3) SATISFACTORY work on ALL scoring categories will receive scores of 18 out of 30 on Part B.

Readers will find the results most meaningful in the context of the assignment and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. The scoring guides that describe proficiency levels are in the *Grade 12 Diploma Examinations Program Bulletin: Social Studies 30: 1990-91 School Year (September 1990).*

## PART B: WRITTEN-RESPONSE
## BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

The written-response section contributes 30% of the examination mark. Students are required to write one complete and unified essay in which they define the scope of an issue and rationally defend a position through the application of supportive evidence with respect to the issue. The organization of arguments should show evidence of logical thought that is persuasive for the reader. Students are expected to make use of critical and creative thinking skills to demonstrate complexity and independence of thought.

Part B: Written Response has a total value of 30 marks: 10 marks each for Defence of Position and Presentation of Examples or Case Studies, and five marks each for Definition of the Issue and Quality of Language and Expression.

| SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|
| | | (5) EXCEPTIONAL | (4) PROFICIENT | (3) SATISFACTORY | (2) LIMITED | (1) POOR | (0) INS |
| 1. Definition of the Issue | 5 | 2.7 | 18.1 | 43.2 | 29.9 | 5.9 | 0.3 |
| 2. Defence of Position | 10 | 2.5 | 18.6 | 46.2 | 29.7 | 2.8 | 0.3 |
| 3. Presentation of Examples or Case Studies | 10 | 2.9 | 17.0 | 40.4 | 32.1 | 7.2 | 0.3 |
| 4. Quality of Language and Expression | 5 | 3.2 | 23.1 | 59.0 | 13.6 | 0.8 | 0.3 |

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

## EXAMINERS' COMMENTS

In response to considerable reflection and teacher input, the scoring descriptors for 1991 were revised to define more precisely the process of defending a position. As well, the requirements of the written-response part of the examination included a significant change from previous years: the addition of a new scoring category, Definition of the Issue. It was expected that the revisions would improve the flexibility of the guide, thereby freeing students to use their own organization to express their ideas.

The results of the written component of the January 1991 examination showed a significant increase in the average score achieved provincially compared to previous administrations of the examination. A closer statistical review of the percentage distribution of scores reveals that at least 60.3% of the students achieved or exceeded a satisfactory level of performance on all the scoring categories. In fact, 85.3% of the students received Satisfactory or better on Quality of Language and Expression.

This improvement in student writing, in terms of the standards inherent within each scoring category, was the probable result of increased attention to writing given by social studies teachers, improvement in thinking and writing skills by students, and revisions to the assignment, the scoring guide categories, and the descriptors.

The new scoring category, Definition of the Issue, tended to free many students to the extent that they were better able to express a clearer understanding of the dimensions of the issue. Some students, however, in attempting to address this task, failed to identify the underlying assumptions associated with different perspectives on the issue, or they used simplistic two-valued orientations. Nonetheless, as many as 64% of the students met the criteria necessary for the Satisfactory level of performance or better in this category.

Many markers, including those teachers who served to confirm standards, felt that students were more aware of how to organize their arguments in defending their positions logically and effectively. Papers were generally more integrated as a result. Many students also argued with conviction as well as with reason. In fact, 67.2% of the students achieved or exceeded a Satisfactory level of performance in defending their position.

A greater number of students than on previous administrations developed their supporting evidence from a theoretical or metaphorical perspective. While such an approach was often successful and added an interesting flavor to student writing, it also resulted in some writing that was not well grounded in social studies knowledge and concepts. It was also encouraging to see many students drawing their evidence from appropriate and relevant current events in their presentation of examples and case studies. In this category, 60.3% of the students achieved or exceeded a Satisfactory level of performance.

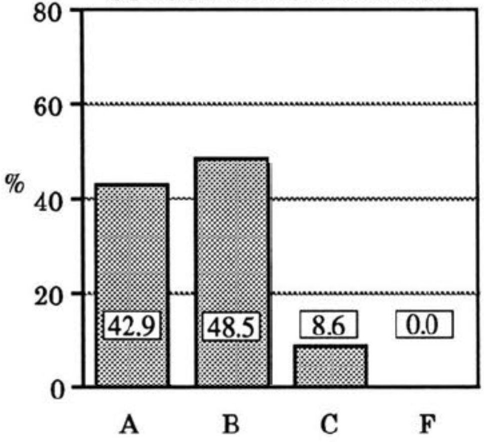
In general, the essays appeared to be less contrived and more fluent than in previous years.

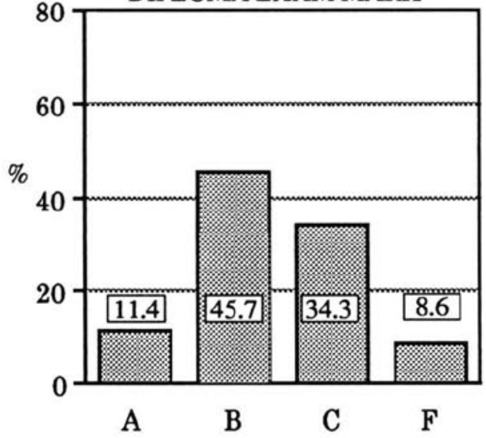
Many students choosing to write on Topic A used conventional examples or case studies (e.g., Canada, the U. S. A., and Sweden) in developing their evidence. In so doing, these students exhibited a competent, even perceptive, understanding and application of social studies content. Other students, however, composed descriptive rather than analytical responses. The quality of their responses was diminished by the inclusion of unnecessary or marginally relevant information. They did not link their evidence appropriately to their position, or they may have left the reader to establish the link.

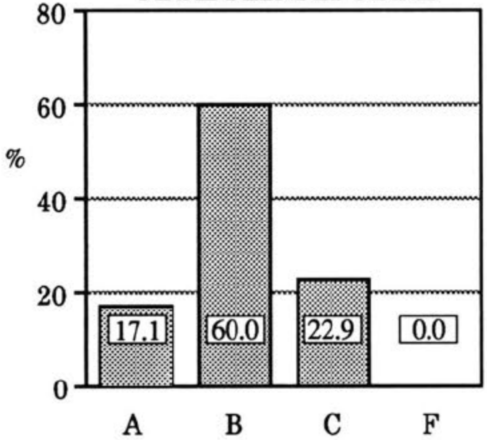
Topic B essays included many of the more insightful and perceptive papers. However, some students choosing Topic B demonstrated conceptual confusion in understanding the nature of "national security." They tended to associate isolationism as the only foreign policy appropriate to defending national security.

For further information, contact Barry Jonas, Tom Dunn, or Elana Scraba at the Student Evaluation Branch, 427-2948.

# Français 30 Diploma Examination Results
# Examiners' Report, January 1991


SCHOOL-AWARDED MARK


DIPLOMA EXAM MARK


FINAL BLENDED MARK

The summary information in this report provides teachers, school administrators, students, and interested others with an overview of results from the January 1991 administration of the Français 30 Diploma Examination. The information will be most useful when teachers and administrators use it in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

## DESCRIPTION OF THE EXAMINATION

The Français 30 Diploma Examination consists of two parts: a written-response section worth 50% and a multiple-choice section worth 50%.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 35 students who wrote the January 1991 Français 30 Diploma Examination.

- 100.0% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 17.1% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

## PROVINCIAL AVERAGES

- The average school-awarded mark was 75.5%.
- The average diploma examination mark was 66.5%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 71.2%.

## PART A: WRITTEN RESPONSE

The written-response section of the Français 30 Diploma Examination requires students to write two separate assignments related to the same piece of literature. The first assignment requires students to write a personal response to the literature. The second requires them to discuss literature read in class that is related to the given theme. A description of each assignment is given in the blueprint below.

The results for Part A: Written Response are most clearly understood in the context of the assignments and the scoring descriptors, and are best interpreted by considering the percentage of students achieving at (3) SATISFACTORY or better. Satisfactory work that meets the standards expected is described in the scoring guide. Complete scoring guides are available in the *Bulletin de Français 30, Programme des examens en vue du diplôme*, Année scolaire 1990-91. **Readers should be cautious about drawing conclusions based on these results since the number of students writing was only 35**. However, results should be of some help to teachers and administrators in considering areas of strength and weakness in their own programs.

### EXAMINATION BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

| DESCRIPTION OF THE WRITING ASSIGNMENT | SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) EXCELLENT | (4) PROFICIENT | (3) SATISFACTORY | (2) LIMITED | (1) POOR | (0) INS |
| Premier sujet<br>Students are required, by calling upon their personal experiences or other sources, to present an opinion, express a reaction, or discuss pertinent information related to a reading selection presented in the examination. Students are also required to adapt their use of language and details in such a way as to communicate effectively the message they wish to convey to their chosen public. | 1. Choice and Expression | 12.5 | 28.6 | 42.9 | 25.7 | 2.9 | 0.0 | 0.0 |
| | 2. Style and Knowledge of the Language | 7.5 | 17.1 | 31.4 | 48.6 | 2.9 | 0.0 | 0.0 |
| Deuxième sujet<br>The "deuxième sujet" gives students a specific topic related to a reading selection presented in the examination. The topic requires students to discuss literature studied in their French courses, while leaving them the choice of method and style of presentation, as well as choice of details (examples and illustrations). Students are expected to express themselves clearly and correctly, keeping in mind their chosen public. | 1. General Impression | 5.0 | 11.4 | 45.7 | 40.0 | 2.9 | 0.0 | 0.0 |
| | 2. Treatment of the Subject: Choice and Expression | 7.5 | 14.3 | 40.0 | 45.7 | 0.0 | 0.0 | 0.0 |
| | 3. Organization | 7.5 | 17.1 | 45.7 | 34.3 | 2.9 | 0.0 | 0.0 |
| | 4. Style | 5.0 | 17.1 | 34.3 | 48.6 | 0.0 | 0.0 | 0.0 |
| | 5. Knowledge of the Language | 5.0 | 14.3 | 34.3 | 48.6 | 2.9 | 0.0 | 0.0 |

## EXAMINERS' COMMENTS

Students seemed to understand the two assignments presented on the examination, and most students developed SATISFACTORY or better compositions. The content of the essays showed that the students clearly understood the poem "Lettre à Jupiter" on which the assignments were based.

For the "Premier sujet," students were able to assume the role of Jupiter and to write a thoughtful response to the letter that had been addressed to him. Students chose a position regarding the justifiability or unjustifiability of being dissatisfied with one's lot in life. They defended their positions with examples taken from their own experiences or from attitudes and actions found in society today. Some chose examples from literature.

For the "Deuxième sujet," which was related to literature students had studied in their French courses, students had no difficulty selecting literature in which one or more characters faced conflict in their lives. The students were also able to discuss the effect that the conflict had on the lives of those characters.

For "Treatment of the Subject: Choice and Expression," 14.3% of the students received a score of (5) EXCELLENT, 40.0% received a score of (4) PROFICIENT, and 45.7% received a score of (3) SATISFACTORY. These scores are best understood in the context of the assignments and the descriptors in the scoring guides. A copy of the scoring guides appears in the *Bulletin de Français 30, Programme des examens en vue du diplôme*, Année scolaire 1990-91.

Students used language clearly and correctly, with only 2.9% (one student) receiving a score below (3) SATISFACTORY in this category. Good organization and style were also evident, as shown by the result summaries in this report.

## PART B: READING (MULTIPLE CHOICE)

Part B: Reading (Multiple Choice) of the examination consists of a reading booklet in which there are seven passages: two nonfiction, three fiction, one poem, and one piece of drama. A separate questions booklet contains 70 questions based on these readings. The questions are classified according to curriculum content and thinking skills.

### RESULTS

Results are in average raw scores.

Total Part B: 40.3 out of 70

Subtest Results:*

- Course content
  - Main ideas/opinions: 23.9 out of 39
  - Rapport between the author and the reader: 10.7 out of 19
  - Values expressed: 5.8 out of 12

*Readers should use caution when considering the results, since the number of students writing – 35 – was very small and since the subtests are not of equal difficulty.

### EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curriculum content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications.

| Question Type by Course Content | Question Type by Thinking Skills | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Identify and Select | Infer, Apply, Interpret | Evaluate and Judge | |
| Main ideas/ opinions | 5, 21, 23, 30, 55, 66 | 2, 4, 7, 24, 26, 27, 31, 32, 33, 34, 40, 44, 47, 49, 50, 52, 53, 58, 60, 61, 63, 64, 67, 68 | 1, 3, 6, 10, 14, 22, 45, 56, 69 | 28 |
| Rapport between the author and the reader | | 8, 9, 15, 16, 17, 18, 19, 29, 37, 54, 62, 65, 70 | 11, 13, 20, 28, 36, 51 | 13.5 |
| Values expressed | 57 | 25, 35, 38, 41, 42, 43, 48, 59 | 12, 39, 46 | 8.5 |
| Examination Emphasis (%) | 5 | 32 | 13 | 50 |

## RESULTS (continued)

The following table shows question-by-question results and the keyed answer. There is a parallel table in the school and jurisdiction reports so that teachers can determine areas of strength and weakness in the achievement of their students and, consequently, areas of strength and weakness in their programs.

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 60.0 | 15 | B | 40.0 | 29 | D | 80.0 | 43 | D | 20.0 | 57 | A | 28.6 |
| 2 | D | 82.9 | 16 | B | 77.1 | 30 | B | 28.6 | 44 | A | 34.3 | 58 | D | 40.0 |
| 3 | A | 62.9 | 17 | B | 77.1 | 31 | C | 48.6 | 45 | B | 28.6 | 59 | C | 54.3 |
| 4 | C | 45.7 | 18 | C | 65.7 | 32 | A | 77.1 | 46 | D | 31.4 | 60 | C | 60.0 |
| 5 | D | 97.1 | 19 | B | 62.9 | 33 | C | 40.0 | 47 | C | 68.6 | 61 | B | 82.9 |
| 6 | D | 74.3 | 20 | A | 51.4 | 34 | B | 94.3 | 48 | A | 54.3 | 62 | D | 82.9 |
| 7 | A | 37.1 | 21 | B | 68.6 | 35 | A | 37.1 | 49 | D | 42.9 | 63 | A | 82.9 |
| 8 | C | 51.4 | 22 | A | 57.1 | 36 | D | 37.1 | 50 | A | 37.1 | 64 | A | 51.4 |
| 9 | D | 48.6 | 23 | D | 74.3 | 37 | A | 25.7 | 51 | B | 37.1 | 65 | C | 51.4 |
| 10 | B | 37.1 | 24 | A | 80.0 | 38 | C | 60.0 | 52 | D | 42.9 | 66 | C | 88.6 |
| 11 | C | 68.6 | 25 | B | 45.7 | 39 | C | 54.3 | 53 | D | 60.0 | 67 | B | 68.6 |
| 12 | C | 85.7 | 26 | B | 62.9 | 40 | D | 57.1 | 54 | A | 62.9 | 68 | A | 37.1 |
| 13 | B | 54.3 | 27 | C | 42.9 | 41 | D | 48.6 | 55 | D | 88.6 | 69 | C | 82.9 |
| 14 | D | 74.3 | 28 | A | 57.1 | 42 | C | 57.1 | 56 | B | 85.7 | 70 | D | 37.1 |

*Difficulty – percentage of students answering the question correctly

Note: Statistics should be interpreted with great caution because of the extremely small number of students involved.

## EXAMINERS' COMMENTS

The table below relates to four questions selected from the examination. For each question, three statistical references are given: the percentage of all students writing the examination who chose the correct answer, the percentage of students achieving the STANDARD OF EXCELLENCE (80% or higher, or A, on the whole examination) who chose the correct answer, and the percentage of students achieving the ACCEPTABLE STANDARD (but not achieving marks higher than 64%, or C, on the whole examination) who chose the correct answer. The comments on pages 5 and 6 discuss some of the decisions that students made and some of the skills they used to answer correctly.

Percentage of Students Correctly Answering Selected Questions
(Parts A and B combined)

| Student Group | Question Number | | | |
|---|---|---|---|---|
| | 7 | 26 | 30 | 53 |
| All students | 37.1 | 62.9 | 28.6 | 60.0 |
| Students achieving the Standard of Excellence (80% or higher, or A) | 75.0 | 100.0 | 100.0 | 75.0 |
| Students achieving the Acceptable Standard who received marks between 50% and 64%, or C | 25.0 | 50.0 | 8.3 | 58.3 |

| Questions | Comments |
|---|---|
| **7.** Le commentaire que fait Robert au sujet de la mise en plis de Louise, aux lignes 73 et 74, montre qu'il<br>*** A.** devient sensible à l'apparence des femmes<br>**B.** aime se mêler des affaires de Louise<br>**C.** pense au bonheur de sa soeur<br>**D.** veut en imposer à Louise | Question 7 required the student to infer why Robert, usually not in the least bit interested in his sister's appearance or in communicating with her, should suddenly notice her untidy hair and suggest sharply that she needs to get her hair done. It is reasonable to expect Français 30 students to connect this awareness of her looks to the fact that he now has an interest in women because, in the story, he is anticipating meeting a woman with whom he has been corresponding through a matrimonial agency. Of the students who wrote the examination, 37.1% chose the correct answer, A. Of those students who achieved the standard of excellence, 75% chose the correct answer, as did 25% of those who achieved marks between 50% and 64%. None of the students who failed the examination answered the question correctly. Although this question is very difficult, it gave the top students the opportunity to show their ability. |
| **26.** Les procédés employés par Yvette Parès à Keur Massar sont<br>**A.** devenus la base de recherches<br>*** B.** contestés par d'autres spécialistes<br>**C.** comparables à la médecine occidentale<br>**D.** acceptés par plusieurs autres cliniques | Question 26 required students to read carefully a paragraph expressing the reaction of leaders in the medical and scientific world to the work done by Yvette Parès in the treatment of leprosy. It was reasonable to expect students to be able to infer that a number of these well-known doctors had doubts concerning the claims of success made by Dr Parès about her treatment of the disease.<br>Students found the question to be of average difficulty with 62.9% of them choosing B, the correct alternative. All students achieving the standard of excellence on the whole examination answered correctly. Of the students achieving marks between 50% and 64%, 50% chose the correct alternative. Of the three students who failed the examination, one chose the right answer. |

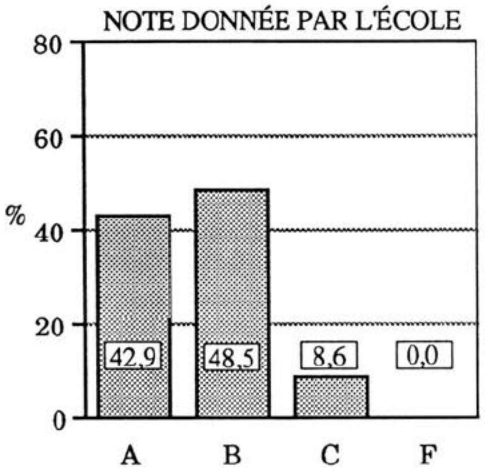
## EXAMINERS' COMMENTS (continued)

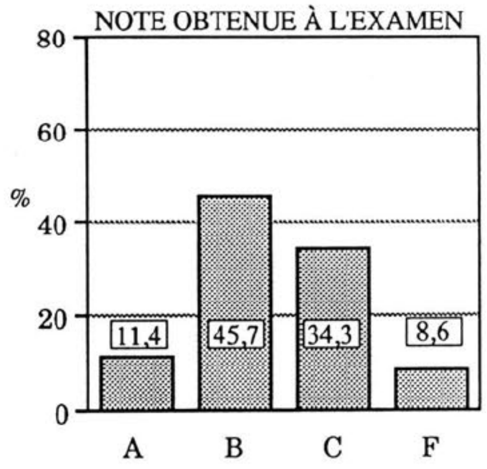
| Questions | Comments |
|---|---|
| **30.** Dans sa lutte contre la lèpre, le Dr Parès passe pour une<br>**A.** cancérologue avertie<br>*** B.** pionnière marginale<br>**C.** biologiste conformiste<br>**D.** léprologue soutenue par ses collègues | Question 30 is considered to be a "global" question; that is, one that involves recognizing a summarizing statement, in this case about Dr. Parès herself. This is not an unreasonable expectation for Français 30 students, though some students might find it difficult, especially if they are used to searching for a specific answer in a specific part of the selection. Of all the students who wrote the examination, 28.6% chose the right answer, B. All students who achieved the standard of excellence answered correctly. Only 8.3% of those achieving marks between 50% and 64% chose the correct response. Of the three students who failed the examination, none of them answered correctly. It would seem, then, that the question was difficult for the lower achieving students. |
| **53.** Ce qui a fait rire l'auditoire, c'est<br>**A.** que l'enfant ait l'air trop jeune<br>**B.** le regard glacé du père pour l'enfant<br>**C.** que l'enfant ait reculé vers les coulisses<br>*** D.** le contraste entre l'âge de l'enfant et son costume | Question 53 required the students to infer why the audience laughed when the young pianist came on the stage. Such inference is a reasonable expectation of a Français 30 student. The specificity of the question requires the student to reread that portion of the story where the action takes place. Such careful attention would help the student considerably in choosing an alternative. Of all the students who wrote the examination, 60% chose the correct answer, D. Of the students achieving the standard of excellence, 75% answered correctly and 58.3% of the students achieving marks between 50% and 64% made the correct choice. Of the three students who failed the examination, only one got the question right. |

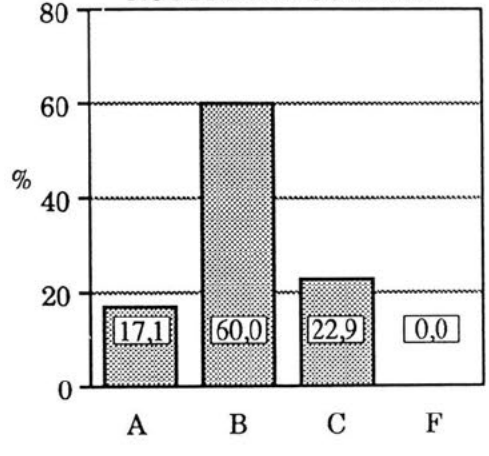
For further information, contact Aline Mercier, Tom Dunn, or Elana Scraba at the Student Evaluation Branch, 427-2948.

# Résultats de l'examen de Français 30 en vue du diplôme

# Rapport des examinateurs, Janvier 1991







Les renseignements sommaires donnés dans le présent rapport fournissent aux enseignants, aux administrateurs scolaires, aux élèves et à toute autre personne intéressée une vue d'ensemble des résultats de l'examen de Français 30 en vue du diplôme administré en janvier 1991. Ces renseignements seront le plus utiles quand enseignants et administrateurs les utiliseront à côté des rapports détaillés par école et par juridiction qui ont été envoyés aux bureaux des juridictions scolaires. Un rapport provincial annuel contenant une analyse détaillée des résultats combinés de janvier, juin et août sera disponible à la fin de 1991.

## DESCRIPTION DE L'EXAMEN

L'examen de Français 30 en vue du diplôme comporte deux parties: la production écrite qui vaut 50% de la note totale d'examen et la compréhension écrite (choix multiples) qui vaut également 50% de la note totale d'examen.

## NIVEAU ATTEINT

Les renseignements donnés ici sont basés sur les notes finales combinées obtenues par les 35 élèves qui ont passé l'examen de Français 30 en vue du diplôme en janvier 1991.

- 100,0% de ces élèves ont atteint le niveau acceptable (une note finale combinée de 50% ou plus).
- 17,1% des élèves ont atteint le niveau excellent (une note finale combinée de 80% ou plus).

## MOYENNE PROVINCIALE

- La note moyenne donnée par l'école était 75,5%.
- La note moyenne obtenue à l'examen était 66,5%.
- La note moyenne finale combinée, représentant un pourcentage égal de la note du diplôme et de celle de l'école, était 71,2%.

## PARTIE A: PRODUCTION ÉCRITE

Dans la partie production écrite de l'examen du Français 30 en vue du diplôme, il est demandé aux élèves d'écrire sur deux sujets séparés, portant tous les deux sur un même passage littéraire. Dans le premier sujet, il est demandé aux élèves de rédiger un réponse personnelle au passage littéraire. Dans l'autre sujet, il leur est demandé de discuter des oeuvres littéraires lues en classe qui se rapportent au thème donné. Une description de chaque exercice est donnée dans le plan d'ensemble ci-dessous.

Les résultats de la Partie A: Production écrite se comprennent le mieux dans le contexte des exercices et des descripteurs utilisés pour les noter, et s'interprètent le mieux en considérant le pourcentage d'élèves ayant atteint le niveau (3) SATISFAISANT ou mieux que satisfaisant. Un travail qui répond au normes proposées est décrit dans le guide de notation. On trouvera les guides de notation complets dans le *Bulletin de Français 30, Programme des examens en vue du diplôme*, Année scolaire 1990-91. **Le lecteur devrait se garder de tirer des conclusions basées sur ces résultats puisqu'il n'y a que 35 élèves qui ont écrit cet examen.** Les résultats devraient toutefois être utiles pour les enseignants et les administrateurs pour considérer les domaines de force et de faiblesse dans leurs propres programmes.

## PLAN D'ENSEMBLE et RÉPARTITION DES RÉSULTATS EN POURCENTAGE

| DESCRIPTION DES EXERCICES | CATÉGORIE DE NOTATION | POURCENTAGE DE LA NOTE TOTALE (%) | RÉPARTITION DES POINTS EN POURCENTAGE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) EXCELLENT | (4) COMPÉTENT | (3) SATISFAISANT | (2) LIMITÉ | (1) PAUVRE | (0) INS |
| Premier sujet<br>Le premier sujet présente aux élèves une situation ou un contexte (qui pourrait se rapporter à un texte) à partir duquel on leur demandera, en faisant appel à leurs expériences personelles, ou à tout autre renseignement, d'exprimer une opinion, d'exposer une réaction ou de présenter des renseignements pertinents. Les élèves devraient adapter la langue et les détails pour communiquer de façon efficace leur message à leur public cible selon le but choisi. | 1. Choix et formulation des idées | 12,5 | 28,6 | 42,9 | 25,7 | 2,9 | 0,0 | 0,0 |
| | 2. Style et connaissance de la langue | 7,5 | 17,1 | 31,4 | 48,6 | 2,9 | 0,0 | 0,0 |
| Deuxième sujet<br>Le deuxième sujet fixe une tâche précise mais laisse aux élèves le choix de la structure et du style, ainsi que le choix des détails pertinents (exemples, illustrations) qui doivent être tirés des oeuvres étudiées dans leurs cours de français. Le sujet à traiter se rapportera à un texte présenté à l'examen. Les élèves devront établir des liens entre les textes étudiés et s'exprimer clairement par écrit en tenant compte de leur public cible. | 1. Impression générale | 5,0 | 11,4 | 45,7 | 40,0 | 2,9 | 0,0 | 0,0 |
| | 2. Traitement du sujet: Choix et formulation des idées | 7,5 | 14,3 | 40,0 | 45,7 | 0,0 | 0,0 | 0,0 |
| | 3. Organisation | 7,5 | 17,1 | 45,7 | 34,3 | 2,9 | 0,0 | 0,0 |
| | 4. Style | 5,0 | 17,1 | 34,3 | 48,6 | 0,0 | 0,0 | 0,0 |
| | 5. Connaissance de la langue | 5,0 | 14,3 | 34,3 | 48,6 | 2,9 | 0,0 | 0,0 |

## COMMENTAIRES DES EXAMINATEURS

Les élèves ont semblé comprendre les deux sujets présentés à l'examen et la plupart des élèves ont rédigé des compositions SATISFAISANTES ou mieux que satisfaisantes. Le contenu des essais a montré que les élèves comprenaient bien le poèm "Lettre à Jupiter", sur lequel étaient basés les sujets.

Pour le premier sujet, les élèves étaient capables d'assumer le rôle de Jupiter et de rédiger une réponse réfléchie à la lettre qui lui avait été adressée. Les élèves ont choisi une position sur la légimité ou l'illégimité de ne pas savoir se contenter de son sort. Ils ont défendu leurs positions avec des exemples tirés de leurs propres expériences ou d'attitudes ou d'actions empruntées à la société. Certains ont choisi des exemples tirés de la littérature.

Pour le deuxième sujet, qui portait sur la littérature étudiée dans leurs cours de français, les élèves n'ont eu aucune difficulté à trouver une oeuvre littéraire dans laquelle un ou plusieurs personnages faisaient face à un conflit dans leur vie. Les élèves ont aussi été capables de discuter l'effet que le conflit avait sur la vie de ces personnages.

Pour le "Traitement du sujet: Choix et formulation des idées", 14,3% des élèves ont obtenu une note de (5) EXCELLENT, 40% une note de (4) COMPÉTENT et 45,7% une note de (3) SATISFAISANT. Ces notes se comprennent le mieux sans le contexte des exercices et des descripteurs donnés dans les guides de notation. Une copie des guides de notation se trouve dans *Bulletin de Français 30, Programme des examens en vue du diplôme*, Année scolaire 1990-91.

Les élèves ont employé une langue claire et correcte, 2,9% (un élève) seulement atteignant un niveau inférieur à (3) SATISFAISANT dans cette catégorie. Un bon plan et un bon style étaient aussi évidents, comme le montrent les résultats récapitulés dans ce rapport.

## PARTIE B: COMPRÉHENSION ÉCRITE (CHOIX MULTIPLES)

La Partie B: Compréhension écrite (choix multiples) de l'examen se compose d'un livret de lecture dans lequel il y a sept passages: deux non romanesques, trois romanesques, un poème et un extrait de pièce de théâtre. Un livret de questions séparé contient 70 questions basées sur ces passages. Les questions sont classées d'après le contenu du programme et les habiletés cognitives.

### RÉSULTATS

Les résultats sont donnés en première approximation de moyenne.

Total de la Partie B: 40,3 sur 70

Résultats par subtest:*

- Contenu du cours
  - Idées principales/opinions: 23,9 sur 39
  - Rapport entre l'auteur et le lecteur: 10,7 sur 19
  - Valeurs exprimées: 5,8 sur 12

### PLAN D'ENSEMBLE DE L'EXAMEN

La Partie B: Compréhension écrite (choix multiples) a une valeur de 70 points pour chaque question à choix multiples. Chaque question est classée de deux façons: d'après le domaine du programme faisant l'objet de la question et d'après l'habileté (processuelle) cognitive exigée par la question. Le plan d'ensemble de l'examen illustre la répartition des questions en janvier 1991 d'après ces classifications.

| Type de question/ contenu du cours | Types de questions/habiletés cognitives | | | Pourcentage de l'examen (%) |
|---|---|---|---|---|
| | Identifier et Sélectionner | Inférer, Appliquer, et Interpréter | Évaluer et Juger | |
| Idées principales/ opinions | 5, 21, 23, 30, 55, 66 | 2, 4, 7, 24, 26, 27, 31, 32, 33, 34, 40, 44, 47, 49, 50, 52, 53, 58, 60, 61, 63, 64, 67, 68 | 1, 3, 6, 10, 14, 22, 45, 56, 69 | 28 |
| Rapport entre l'auteur et le lecteur | | 8, 9, 15, 16, 17, 18, 19, 29, 37, 54, 62, 65, 70 | 11, 13, 20, 28, 36, 51 | 13.5 |
| Valeurs exprimées | 57 | 25, 35, 38, 41, 42, 43, 48, 59 | 12, 39, 46 | 8.5 |
| Pourcentage de l'examen (%) | 5 | 32 | 13 | 50 |

*Les lecteurs devraient considérer les résultats avec circonspection puisque le nombre des élèves ayant passé l'examen – 35 – était très petit et puisque les subtests ne sont pas de difficulté égale.

## RÉSULTATS (suite)

Le tableau suivant donne, question par question, les résultats et la bonne réponse. Il y a un tableau parallèle dans les rapports par école et par juridiction pour que les enseignants puissent déterminer les domaines de force et de faiblesse dans les résultats de leurs élèves et, en conséquence, les domaines de force et de faiblesse dans leurs programmes.

| QUES. | RÉP. | DIFF.* | QUES. | RÉP. | DIFF. | QUES. | RÉP. | DIFF. | QUES. | RÉP. | DIFF. | QUES. | RÉP. | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 60,0 | 15 | B | 40,0 | 29 | D | 80,0 | 43 | D | 20,0 | 57 | A | 28,6 |
| 2 | D | 82,9 | 16 | B | 77,1 | 30 | B | 28,6 | 44 | A | 34,3 | 58 | D | 40,0 |
| 3 | A | 62,9 | 17 | B | 77,1 | 31 | C | 48,6 | 45 | B | 28,6 | 59 | C | 54,3 |
| 4 | C | 45,7 | 18 | C | 65,7 | 32 | A | 77,1 | 46 | D | 31,4 | 60 | C | 60,0 |
| 5 | D | 97,1 | 19 | B | 62,9 | 33 | C | 40,0 | 47 | C | 68,6 | 61 | B | 82,9 |
| 6 | D | 74,3 | 20 | A | 51,4 | 34 | B | 94,3 | 48 | A | 54,3 | 62 | D | 82,9 |
| 7 | A | 37,1 | 21 | B | 68,6 | 35 | A | 37,1 | 49 | D | 42,9 | 63 | A | 82,9 |
| 8 | C | 51,4 | 22 | A | 57,1 | 36 | D | 37,1 | 50 | A | 37,1 | 64 | A | 51,4 |
| 9 | D | 48,6 | 23 | D | 74,3 | 37 | A | 25,7 | 51 | B | 37,1 | 65 | C | 51,4 |
| 10 | B | 37,1 | 24 | A | 80,0 | 38 | C | 60,0 | 52 | D | 42,9 | 66 | C | 88,6 |
| 11 | C | 68,6 | 25 | B | 45,7 | 39 | C | 54,3 | 53 | D | 60,0 | 67 | B | 68,6 |
| 12 | C | 85,7 | 26 | B | 62,9 | 40 | D | 57,1 | 54 | A | 62,9 | 68 | A | 37,1 |
| 13 | B | 54,3 | 27 | C | 42,9 | 41 | D | 48,6 | 55 | D | 88,6 | 69 | C | 82,9 |
| 14 | D | 74,3 | 28 | A | 57,1 | 42 | C | 57,1 | 56 | B | 85,7 | 70 | D | 37,1 |

*Difficulté – pourcentage des élèves ayant bien répondu à la question

Note: Il convient d'interpréter les statistiques avec beaucoup d'attention vu le nombre extrêmement restreint d'élèves.

## COMMENTAIRES DES EXAMINATEURS

Le tableau ci-dessous porte sur quatre questions choisies dans l'examen. Pour chaque question, trois références statistiques sont données: le pourcentage de tous les élèves ayant passé l'examen qui a choisi la bonne réponse, le pourcentage des élèves ayant atteint le NIVEAU EXCELLENT (80% ou plus, ou A, pour tout l'examen) qui a choisi la bonne réponse, et le pourcentage des élèves ayant atteint le NIVEAU ACCEPTABLE (mais n'ayant pas obtenu une note supérieure à 64%, ou C, pour tout l'examen) qui a choisi la bonne réponse. Les commentaires aux pages 5 et 6 discutent certaines des décisions que les élèves ont prises et certaines des habiletés qu'ils ont utilisées pour donner une bonne réponse.

Pourcentage des élèves ayant bien répondu aux questions
(Parties A et B combinées)

| Groupe d'élèves | Numéro de question | | | |
|---|---|---|---|---|
| | 7 | 26 | 30 | 53 |
| Tous les élèves | 37,1 | 62,9 | 28,6 | 60,0 |
| Élèves ayant atteint le niveau excellent (80% ou plus, ou A) | 75,0 | 100,0 | 100,0 | 75,0 |
| Élèves ayant atteint le niveau acceptable qui ont obtenu entre 50% et 64%, ou C | 25,0 | 50,0 | 8,3 | 58,3 |

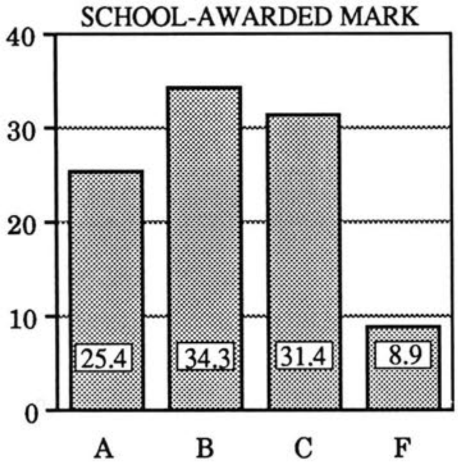
## COMMENTAIRES DES EXAMINATEURS (suite)

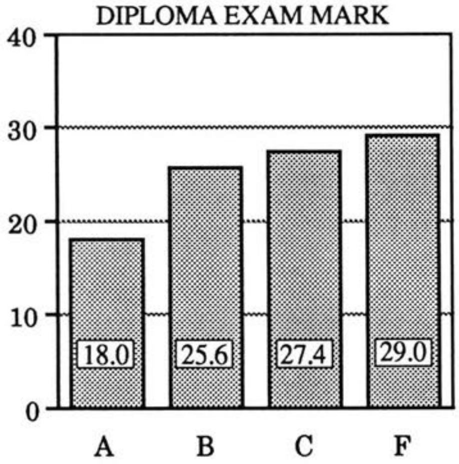
| Questions | Commentaires |
|---|---|
| **7.** Le commentaire que fait Robert au sujet de la mise en plis de Louise, aux lignes 73 et 74, montre qu'il<br>*** A.** devient sensible à l'apparence des femmes<br>**B.** aime se mêler des affaires de Louise<br>**C.** pense au bonheur de sa soeur<br>**D.** veut en imposer à Louise | La question 7 demandait que l'élève déduise la raison pour laquelle Robert, qui ne s'intéressait généralement pas le moins du monde à l'aspect extérieur de sa soeur ou à communiquer avec elle, remarque subitement ses cheveux mal peignés et suggère sèchement qu'elle a besoin d'aller chez le coiffeur. Il est raisonnable de s'attendre à ce que des élèves de Français 30 fassent le lien entre cette prise de conscience de l'aspect de sa soeur et le fait qu'il s'intéresse maintenant aux femmes parce que, dans l'histoire, il se prépare à rencontrer une femme avec laquelle il correspond par l'intermédiaire d'une agence matrimoniale. Sur les élèves qui ont passé l'examen, 37,1% ont choisi la bonne réponse A. Sur les élèves qui ont obtenu le niveau excellent, 75% ont choisi la bonne réponse tandis que le pourcentage était de 25% chez ceux qui ont obtenu entre 50 et 64%. Aucun des élèves qui ont échoué à l'examen n'a bien répondu à la question. Bien que cette question soit très difficile, elle a donné aux meilleurs élèves l'occasion de montrer leurs aptitudes. |
| **26.** Les procédés employés par Yvette Parès à Keur Massar sont<br>**A.** devenus la base de recherches<br>*** B.** contestés par d'autres spécialistes<br>**C.** comparables à la médecine occidentale<br>**D.** acceptés par plusieurs autres cliniques | La question 26 demandait aux élèves de lire attentivement un paragraphe exprimant la réaction des dirigeants du monde médical et scientifique au travail d'Yvette Parès dans le domaine du traitement de la lèpre. Il était raisonnable de s'attendre à ce que les élèves soient capables d'inférer qu'un certain nombre de docteurs connus avaient des doutes sur les prétentions de réussite du Dr Parès et de son traitement de la maladie.<br>Les élèves ont trouvé que la question était de difficulté moyenne, 62,9% d'entre eux ayant choisi B, la bonne réponse. Tous les élèves ayant atteint un niveau excellent pour tout l'examen ont bien répondu. Sur les élèves ayant obtenu entre 50 et 64%, 50% ont choisi la bonne réponse. Sur les trois élèves qui ont échoué à l'examen, un a choisi la bonne réponse. |

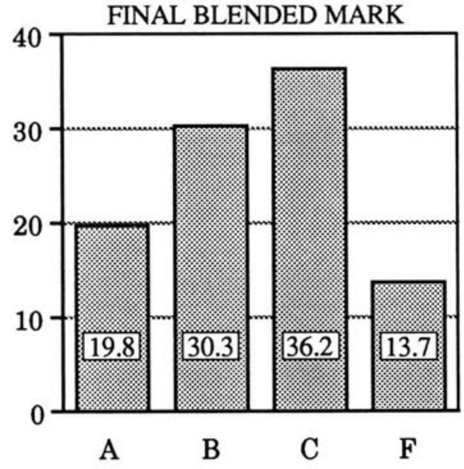
## COMMENTAIRES DES EXAMINATEURS (suite)

| Questions | Commentaires |
|---|---|
| **30.** Dans sa lutte contre la lèpre, le Dr Parès passe pour une<br>**A.** cancérologue avertie<br>*** B.** pionnière marginale<br>**C.** biologiste conformiste<br>**D.** léprologue soutenue par ses collègues | La question 30 est considérée comme étant une question "globale", c'est-à-dire une question qui comporte de reconnaître un énoncé récapitulatif, dans ce cas portant sur le Dr Parès elle-même. Ce n'est pas une attente déraisonnable de la part d'élèves de Français 30, même s'il peut y en avoir qui trouvent cela difficile, surtout s'ils sont habitués à chercher une réponse précise dans une partie donnée du passage. Sur tous les élèves qui ont passé l'examen, 28,6% ont choisi la bonne réponse B. Tous les élèves qui ont atteint le niveau excellent ont bien répondu. Seulement 8,3% de ceux qui ont obtenu entre 50 et 64% ont choisi la bonne réponse. Sur les trois élèves qui ont échoué à l'examen, aucun n'a bien répondu. Il semblerait que la question était difficile pour les élèves de niveau inférieur. |
| **53.** Ce qui a fait rire l'auditoire, c'est<br>**A.** que l'enfant ait l'air trop jeune<br>**B.** le regard glacé du père pour l'enfant<br>**C.** que l'enfant ait reculé vers les coulisses<br>*** D.** le contraste entre l'âge de l'enfant et son costume | La question 53 demandait que les élèves infèrent pourquoi l'auditoire a ri quand le jeune pianiste est entré sur scène. Une telle inférence est une attente raisonnable d'un élève de Français 30. La particularité de la question demandait que l'élève relise la partie de l'histoire où il y a de l'action. Une très grande attention aiderait considérablement l'élève à choisir une réponse. Sur tous les élèves qui ont passé l'examen, 60% ont choisi la bonne réponse D. Sur les élèves ayant atteint le niveau excellent, 75% ont bien répondu et 58,3% des élèves ayant obtenu entre 50 et 64% ont bien choisi. Sur les trois élèves qui ont échoué à l'examen, un seul a bien répondu. |

# Mathematics 30 Diploma Examination Results
# Examiners' Report, January 1991







The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the January 1991 administration of the Mathematics 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

## DESCRIPTION OF THE EXAMINATION

The Mathematics 30 Diploma Examination consists of three parts: a multiple-choice section of 40 questions worth 61.5%, a numerical-response section of 12 questions worth 18.5%, and a written-response section of three questions worth 20%.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 9 232 students who wrote the January 1991 examination.

- 86.3% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 19.8% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

## PROVINCIAL AVERAGES

- The average school-awarded mark was 68.2%.
- The average diploma examination mark was 61.0%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 65.0%.

## SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared.

Machine scored: 32.2 out of 52

Written response: 7.5 out of 13

- Course Content
  - Trigonometry: 9.8 out of 16
  - Quadratic Relations: 8.2 out of 14
  - Sequences, Series, Limits: 8.2 out of 13
  - Statistics: 5.1 out of 8
  - Logarithms: 4.0 out of 7
  - Polynomial Functions: 4.3 out of 7

- Cognitive Levels
  - Knowledge: 2.9 out of 5
  - Comprehension: 12.5 out of 18
  - Application: 20.6 out of 33
  - Higher Mental Activities: 3.5 out of 9

### EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, those with round brackets ( ) indicate numerical-response questions, and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | | Examination Emphasis (%) |
|---|---|---|---|---|---|
| | Knowledge | Comprehension | Application | Higher Mental Activities | |
| Trigonometry | 3 | 4, 7, 9 (1) | 1, 2, 5, 6, (2), [3] | 8 | 24.6 |
| Quadratic Relations | 13 | 10, 15, 16, 19, (5) | 11, 12, 17, 18, 20, (4) | 14, (3) | 21.5 |
| Sequences, Series, Limits | 21 | 22, 23, (6) | 24, 25, 27, [1] | 26, (7) | 20.0 |
| Statistics | | 28, 32, (8) | 29, 31, 33, (9) | 30 | 12.3 |
| Logarithms | 35 | (10) | [2] | 34 | 10.8 |
| Polynomial Functions | 37 | 36, (12) | 38, 39 | 40, (11) | 10.8 |
| Examination Emphasis (%) | 7.7 | 27.7 | 50.8 | 13.8 | 100 |

## RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties. It is designed so that students capable of achieving the acceptable standard would obtain a mark of 50% or higher and students achieving the standard of excellence would obtain a mark of 80% or higher. Future examinations will continue to require students to demonstrate clarity in their thinking as well as a higher level of thinking on a broader range of goals. Students will need to achieve these learner expectations if they are to be successful on the examination.

## MULTIPLE CHOICE

| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | D | 85.8 | 14 | C | 40.9 | 27 | C | 58.6 |
| 2 | B | 85.9 | 15 | D | 60.9 | 28 | A | 74.4 |
| 3 | C | 53.0 | 16 | C | 78.9 | 29 | A | 71.0 |
| 4 | C | 69.1 | 17 | C | 51.8 | 30 | D | 59.3 |
| 5 | B | 65.9 | 18 | B | 50.2 | 31 | D | 51.1 |
| 6 | A | 66.1 | 19 | A | 63.7 | 32 | D | 48.5 |
| 7 | C | 75.3 | 20 | A | 41.8 | 33 | A | 61.2 |
| 8 | B | 48.0 | 21 | C | 64.4 | 34 | B | 29.1 |
| 9 | B | 54.9 | 22 | A | 77.4 | 35 | D | 34.3 |
| 10 | D | 77.9 | 23 | A | 63.4 | 36 | A | 72.9 |
| 11 | B | 68.0 | 24 | A | 73.1 | 37 | C | 74.5 |
| 12 | D | 72.8 | 25 | D | 78.2 | 38 | C | 74.8 |
| 13 | B | 66.4 | 26 | B | 45.3 | 39 | B | 59.5 |
| | | | | | | 40 | D | 39.3 |

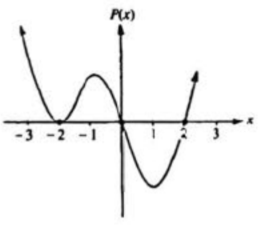
*Difficulty – percentage of students answering the question correctly

## MULTIPLE CHOICE (continued)

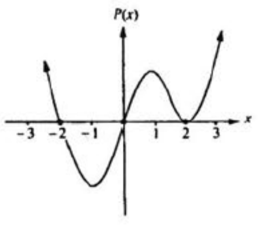
Students were expected to achieve the acceptable standard on all knowledge and comprehension questions — those questions that required students to apply one concept. Almost all students met this expectation. Students achieving the standard of excellence were expected to demonstrate a thorough knowledge of mathematics and to apply this knowledge to new situations. Questions 8, 14, 26, 30, 34, and 40 required students to apply their knowledge of mathematics to a new situation. An illustrative question follows.

**40.** The sketch that illustrates the graph of $P(x) = -a(x^3 - 4x)(x - 2)$, where $a > 0$, is

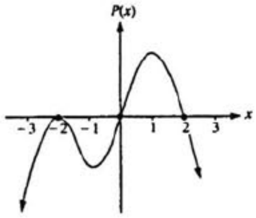
A.



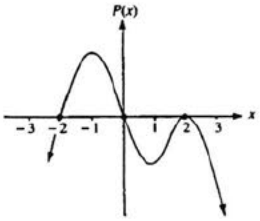
B.



C.



*D.



Question 40 required students to identify the relationship between the equation of a polynomial function and its graph. Students needed to read and interpret the factors of a polynomial function and determine the orientation of the graph, given a literal coefficient. Approximately 75% of all students were able to identify the orientation of the graph. It was expected that those students who achieved the standard of excellence would have no difficulty identifying the relationship between the factors of the polynomial and the $x$-intercepts of the graph. Only 60% of the students who achieved the standard of excellence were able to read the roots of the polynomial function from the equation and then identify the correct graph. Approximately half of the students who did not achieve the standard of excellence misinterpreted the factors of the polynomial function in determining the $x$-intercepts of its graph.

## NUMERICAL RESPONSE

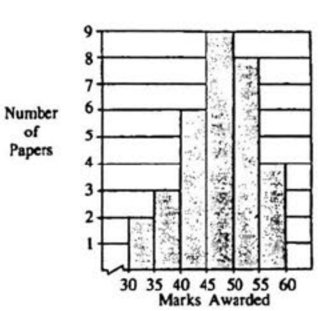
| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | 012.7 | 66.5 | 5 | 014.5 | 61.3 | 9 | 000.3 or 028.1 | 60.0 |
| 2 | 006.8 | 84.5 | 6 | 004.8 | 76.7 | 10 | 006.8 | 72.8 |
| 3 | 033.7 | 28.5 | 7 | 039.8 | 30.5 | 11 | 003.0 | 33.5 |
| 4 | 079.3 | 54.7 | 8 | 005.6 | 84.6 | 12 | 079.0 | 73.5 |

*Difficulty – percentage of students answering the question correctly

**7.** If the infinite geometric series $1 + \tan\theta + \tan^2\theta + \ldots$ has a sum of 6 and $0° < \theta < 90°$, then the measure of $\theta$ correct to the nearest tenth of a degree is ______.

Question 7 required students to determine the common ratio of a geometric series that involved the use of a trigonometric function and then to calculate the value of θ. Close to 75% of the students who achieved the standard of excellence were able to generalize and apply the concepts from both trigonometry and geometric series to solve this problem. Only 2.5% of those students who failed to achieve the acceptable standard were able to generalize the concepts from both content areas.

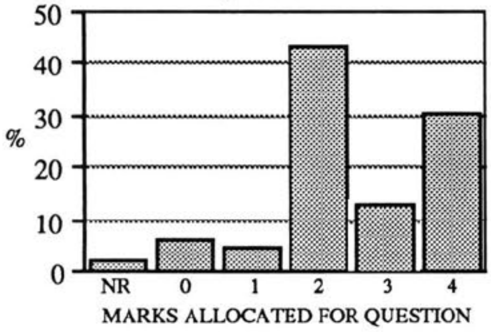
**9.** The histogram at the right indicates the marks awarded on an examination. One paper is drawn from the file. Correct to the nearest tenth, the probability that it will have a score between 45 and 50 is ______.



Question 9 required students to interpret a graph and to calculate the probability that an examination paper drawn at random would have a score between 45 and 50. This probability as a fraction was 9/32. Although the question implied that this final probability should be recorded as a decimal, 10% of the students identified this probability as a percentage. As the skill to be tested in this question was interpreting the graph and computing the probability as a fraction, recording the probability as 28.1% was accepted.

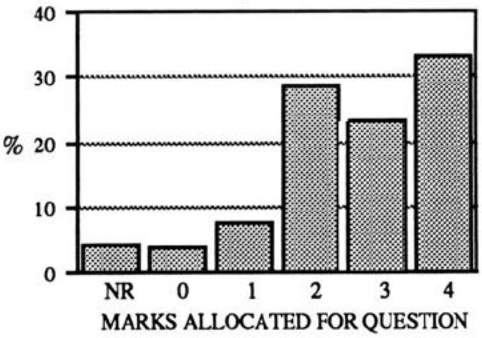
## WRITTEN RESPONSE

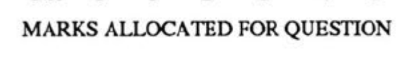
Questions in the written-response section dealt with three of the six content strands for Mathematics 30. Students performing at the acceptable standard were expected to obtain at least half marks on questions 1 and 2, and to be challenged by question 3. Students performing at the standard of excellence were expected to answer all questions almost perfectly.


QUESTION 1

Question 1 was answered well by most students. Students were first required to calculate the number of seats in the sixteenth row of seats in an auditorium. The second part of the question required students to calculate the number of rows of seats in the auditorium, given the total number of seats. Markers noticed that many students were able to calculate the number of seats in the sixteenth row but were confused as to how to approach the second part of the question. Approximately 69% of those students who failed to achieve the acceptable standard obtained at least half marks on this question. On this 4-mark question, the average mark was 2.52 for 63.0% of the available mark.

Question 2 required students to calculate the number of bacteria after a certain time and then to calculate the length of time that it would take for the number of bacteria to reach 43 000. Close to 45% of the students who achieved the acceptable standard were able to calculate both the number of bacteria and the length of time. Of the students who failed to achieve the acceptable standard, 5% were able to calculate both the number of bacteria and the length of time, and 42% were able to calculate the number of bacteria but then failed to recognize an approach to solving the second part of the question. In this particular question, markers noticed that some students rounded numbers off before the last step in the solution. These students lost one mark. On this 4-mark question, the average mark was 2.65 for 66.3% of the available mark.

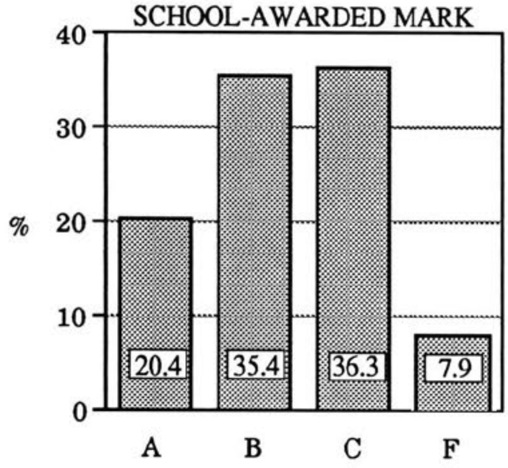

QUESTION 2

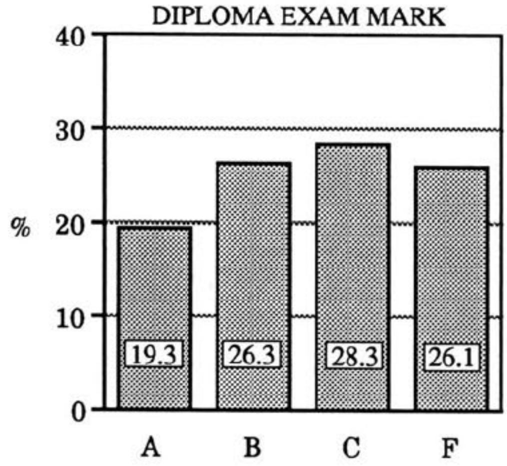

QUESTION 3

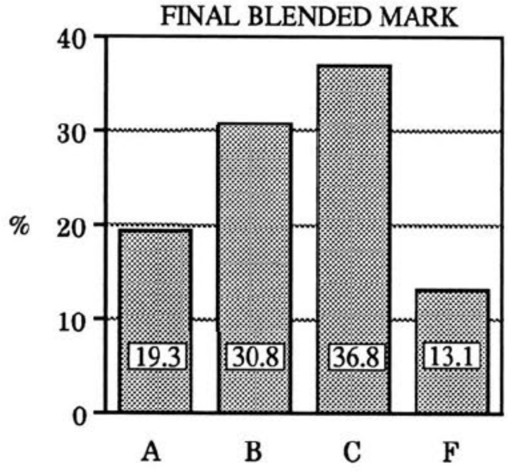
Question 3 required students to prove a trigonometric identity. Close to 60% of the students who failed to achieve the acceptable standard received a mark of 0 on this question, whereas only 18% of the students who achieved the acceptable standard obtained a mark of 0. Markers noticed that many students were inconsistent with mathematical statements in this question; for instance, students would complete the proof without the use of $\theta$'s, use statements such as $\cos^2\theta = \cos\theta^2$, drop the denominator in initial steps of the proof and then pick up the denominator on the last step, or use the right-hand side of the identity in the proof. On this 5-mark question, the average mark was 2.28 for 45.6% of the available mark.

For further information, contact Florence Glanfield, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# Biology 30 Diploma Examination Results
# Examiners' Report, January 1991







The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the January 1991 administration of the Biology 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

## DESCRIPTION OF THE EXAMINATION

The Biology 30 Diploma Examination consists of two parts: a multiple-choice section of 70 questions worth 70% and a written-response section of seven questions worth 30%.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 8 630 students who wrote the January 1991 examination.

- 86.9% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 19.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

## PROVINCIAL AVERAGES

- The average school-awarded mark was 66.8%.
- The average diploma examination mark was 62.2%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 64.9%.

## SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared. Results are in average raw scores.

Machine scored: 46.1 out of 70

Written response: 16.0 out of 30

- Course Content
  - Cellular Processes: 5.8 out of 9
  - Homeostatic Mechanisms: 2.7 out of 4
  - Nutrition and Digestion: 7.3 out of 14
  - Body Fluids: 9.2 out of 15
  - Breathing, Gas Exchange, and Transport: 4.6 out of 7
  - Energy Release: 3.3 out of 5
  - The Kidney: 6.2 out of 10
  - Regulation of the Internal Environment: 13.6 out of 22
  - Voluntary Movement and Body Support: 2.6 out of 4
  - Human Reproduction: 6.8 out of 10
- Process Skills: 20.5 out of 37
  - Multiple-choice questions 3, 5, 11, 15, 29, 31, 34, 36, 50, 55, 56, and 70, and written-response questions 1, 2, 3, 4, 6, and 7.
- Cognitive Levels
  - Knowledge: 16.8 out of 25
  - Comprehension and Application: 33.2 out of 55
  - Higher Mental Activities: 12.2 out of 20

## EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Knowledge | Comprehension and Application | Higher Mental Activities | |
| Cellular Processes | 4, 6 | 1, 2, 3, [1] | 5 | 9 |
| Homeostatic Mechanisms | | 7 | [4] | 4 |
| Nutrition and Digestion | 8, 9, 12, 13, 14 | 10, [2] | 11, 15 | 14 |
| Body Fluids | 16, 19, 22, 23 | 17, 18, 20, 21, 24 | [3] | 15 |
| Breathing, Gas Exchange, and Transport | 25, 26 | 27, 28, 30, 31 | 29 | 7 |
| Energy Release | 32 | 33, 34, 35 | 36 | 5 |
| The Kidney | 37, 39 | 38, 40, 41, 42, 43, [7] | | 10 |
| Regulation of the Internal Environment | 44, 47, 51, 52, 54 | 45, 46, 48, 49, 53, [5], [6] | 50, 55, 56 | 22 |
| Voluntary Movement and Body Support | 57 | 58, 59, 60 | | 4 |
| Human Reproduction | 61, 63, 69 | 64, 65, 66, 67 | 62, 68, 70 | 10 |
| Examination Emphasis (%) | 25 | 55 | 20 | 100 |

## RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties. It is designed so that students capable of achieving the acceptable standard would obtain a mark of 50% or higher and students achieving the standard of excellence would obtain a mark of 80% or higher. This examination is parallel in structure to the 1990 Biology 30 examinations and produced a similar distribution of letter grades (compare Figure 2-15 of the *Annual Report, Diploma Examinations Program*, School Year 1989-90). The number of students who received blended marks in Biology 30 this January in comparison to January 1990 increased by 6.4%. Approximately 14.4% of the students who wrote the Biology 30 Diploma Examination in January 1991 had also written at least one Biology 30 diploma examination in 1990. This subpopulation (1 247) achieved an examination mean that was three per cent lower than the mean achieved by the total population (8 630).

Students who were successful on the examination demonstrated a clear understanding of biology concepts that goes beyond rote memorization and recall of textual material.

## MULTIPLE CHOICE

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 78.9 | 15 | D | 39.4 | 29 | A | 85.7 | 43 | B | 56.4 | 57 | B | 89.1 |
| 2 | D | 68.0 | 16 | B | 55.4 | 30 | A | 69.7 | 44 | B | 74.8 | 58 | D | 76.1 |
| 3 | A | 70.8 | 17 | C | 77.9 | 31 | B | 38.9 | 45 | C | 75.3 | 59 | B | 37.6 |
| 4 | B | 58.0 | 18 | C | 46.7 | 32 | A | 63.7 | 46 | A | 55.1 | 60 | C | 60.3 |
| 5 | A | 57.3 | 19 | C | 77.6 | 33 | A | 64.3 | 47 | A | 70.8 | 61 | A | 71.8 |
| 6 | D | 66.3 | 20 | B | 75.6 | 34 | C | 49.8 | 48 | C | 77.1 | 62 | C | 55.5 |
| 7 | C | 69.9 | 21 | C | 59.3 | 35 | D | 83.6 | 49 | C | 71.2 | 63 | B | 61.1 |
| 8 | B | 56.1 | 22 | B | 60.1 | 36 | C | 70.0 | 50 | B | 67.4 | 64 | C | 80.8 |
| 9 | A | 74.4 | 23 | D | 64.4 | 37 | D | 57.9 | 51 | B | 77.8 | 65 | A | 66.3 |
| 10 | C | 53.4 | 24 | A | 65.4 | 38 | B | 72.7 | 52 | D | 60.3 | 66 | A | 79.4 |
| 11 | C | 79.1 | 25 | C | 77.8 | 39 | A | 60.2 | 53 | C | 63.3 | 67 | C | 73.1 |
| 12 | D | 43.0 | 26 | A | 68.7 | 40 | D | 77.5 | 54 | D | 64.6 | 68 | D | 66.1 |
| 13 | A | 82.7 | 27 | D | 77.4 | 41 | B | 70.7 | 55 | A | 47.5 | 69 | B | 69.4 |
| 14 | B | 74.7 | 28 | D | 41.9 | 42 | D | 72.9 | 56 | A | 56.5 | 70 | A | 51.3 |

*Difficulty – percentage of students answering the question correctly

## MULTIPLE CHOICE (continued)

Students who achieved the acceptable standard demonstrated an understanding of key biological terms by identifying appropriate applications and examples (questions 1, 4, and 32). These students could associate diagrammatic representations of body structures with their corresponding functions (questions 10, 24, and 49). They also had sufficient understanding of biological concepts to identify logical descriptions of cause-and-effect relationships (questions 30, 43, and 65).

Students who achieved the standard of excellence demonstrated the ability to interpret complex experimental data (questions 5, 55, and 70). They also could analyse an investigative apparatus and then identify parallels between its operation and the functions of the human body (questions 31 and 34).

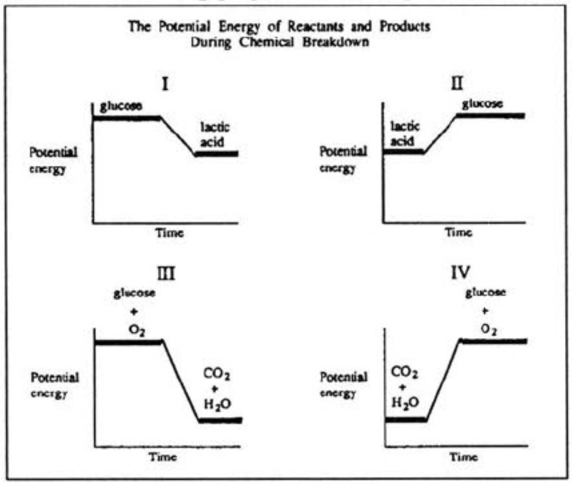
Detailed comments follow on three questions, presented in the order of increasing cognitive level.

**37.** The function of the proximal tubule of the nephron is to

- **A.** initiate the formation of urea
- **B.** filter material from the blood
- **C.** reabsorb urea into the blood
- ***D.** return material to the blood

Question 37 required students to know which part of the nephron is named proximal tubule and then to recall its specific function. In order to identify the correct answer, however, students had to understand the difference between filter and reabsorb, as well as between urea and urine. This clarity of knowledge distinguished those students who achieved the standard of excellence (A) from those who did not achieve the acceptable standard (F). Of the students who obtained an A on the examination, 92.6% selected the correct response, whereas only 25.6% of the students who obtained an F selected the correct response.

**Use the following graphs to answer question 33.**



**33.** The graphs that illustrate aerobic and anerobic respiration respectively are

- ***A.** III and I
- **B.** III and II
- **C.** IV and I
- **D.** IV and II

Question 33 required students to recall the meaning of key biological terms, to distinguish between chemical reactants and products, and to interpret graphs that depicted changes in potential energy. This multistep process-skill question was correctly answered by 92.4% of the students who achieved the standard of excellence (A) on the examination. Of the students who obtained a B or C level of achievement, 67.7% selected the correct answer, whereas only 36.5% of the students who failed the examination selected the correct answer. Many students did not understand the difference between reactants and products, and therefore chose graphs that depicted the chemical sequence in reverse. Other students confused the changes in potential energy over time with the relative amounts of energy released by anaerobic versus aerobic respiration, and chose a pair of graphs that were opposite in the direction of energy change.

**Use the following information to answer question 56.**

Many drugs influence autonomic nervous functions. The table describes the action of four drugs.

| Drug | Action |
|---|---|
| Ephedrine | stimulates release of noradrenaline from sympathetic nerve endings |
| Reserpine | inhibits sympathetic activity by preventing the synthesis of noradrenaline |
| Neostigmine | blocks the action of cholinesterase at neuromuscular junctions |
| Pilocarpine | produces parasympathetic effects |

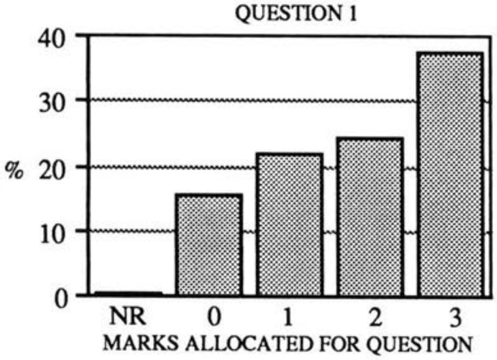
**56.** Which drug would cause an increase in blood pressure?

- ***A.** Ephedrine
- **B.** Reserpine
- **C.** Neostigmine
- **D.** Pilocarpine

Question 56 required students to recall the major factors that directly determine blood pressure (heart action, vessel size). Next they had to analyse the data provided about the drugs so as to determine each drug's effect on the components of the autonomic nervous system. It was then necessary to determine how the drug-induced changes in the nervous system would affect heart action and/or vessel size. Finally, selection of a drug that would increase blood pressure could be made. This multistep problem was solved correctly by 83.1% of the students who achieved the standard of excellence (A) on the examination, whereas 56.9% of the students who obtained a B or C level of achievement solved it correctly and only 35.9% of the students who failed the examination selected the correct answer.

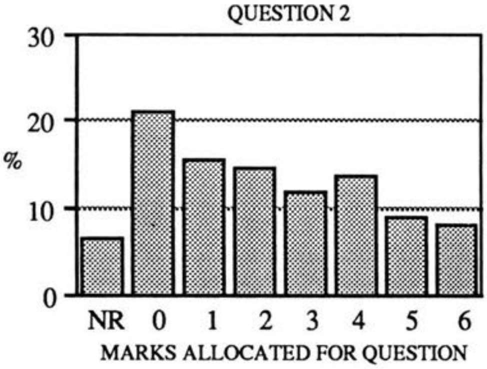
## WRITTEN RESPONSE

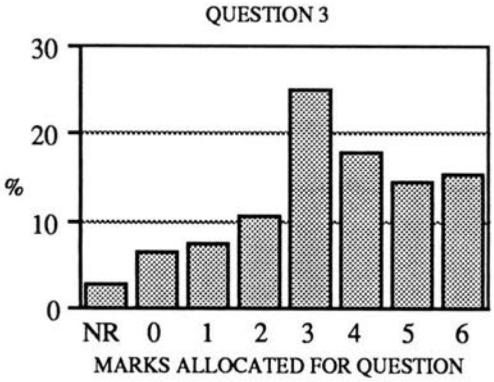
The seven questions in the written-response section are designed to measure achievement on seven of the 10 content strands for Biology 30. All the questions went beyond measuring simple recall of information. Questions 1 and 2 required students to analyse laboratory investigations, and questions 3 and 5 required students to integrate concepts from two content strands. Questions 4 and 6 required students to interpret graphs, evaluate conclusions, and form generalizations. Question 7 required students to explain a common societal situation in terms of physiological processes. The overall quality of student responses showed some improvement in comparison to the responses on the 1990 January and June examinations. The average percentage of no responses was approximately 2.4, a significant decrease from 3.7 for January and June 1990.



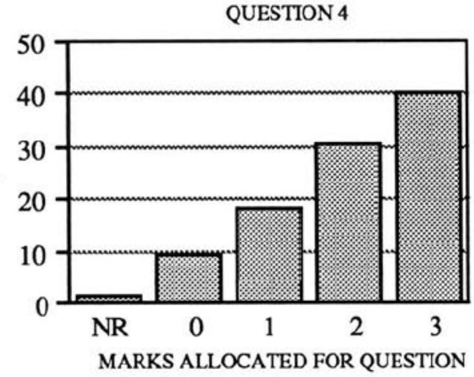
Question 1: Most students identified the correct diagrams for all three parts of the question, but approximately 62% gave incomplete explanations to support their choices. Good explanations were given for distilled water, but many students inaccurately explained hypertonic and isotonic solutions. These students confused the concept of concentration with amount. Another common misconception was that salt enters the cell and pushes water out. Some students did not describe both solutions (beaker/cell) when providing comparisons. On this 3-mark question, the average mark was 1.84 for 61% of the available mark.

Question 2: The fact that this question proved to be the most difficult in the written-response section indicates that the students did not understand chemical digestion from a laboratory perspective. Most students understood that pepsinogen "works" best in an acidic environment and that bile "helps" in fat digestion, but precise explanations and correct procedures for little or no chemical digestion were either inaccurate or absent. Many students thought that distilled water (diluted the enzyme) or heat (denatured the enzyme) prevented chemical digestion. Some students did not recognize the category of food present (egg white/protein, olive oil/lipid). Many students said identification reagents such as Benedict's solution should be added to bring about chemical digestion. On this 6-mark question, the average mark was 2.28 for 38% of the available mark.

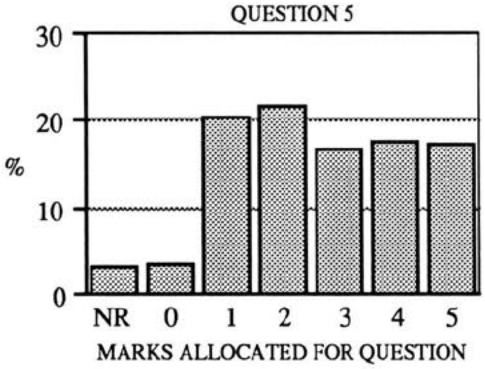




Question 3 generated student responses that reflected a level of understanding above what was expected. Most students could easily identify two significant differences between the two circulatory patterns. Many students then went on to describe the functional implications of the structural differences. It was at this point that misconceptions and weak communication skills became evident. Some students stated that the mother or the placenta pumps blood for the fetus. Others stated that the mother produces blood for the fetus and therefore the mother and fetus share the same blood. Many students limited their descriptions to one of the two circulatory systems and therefore failed to make meaningful comparisons. Too many students presented general functional differences without relating them specifically to the structural differences (newborn uses its lungs). Nevertheless, it should be noted that 30% of the students achieved the standard of excellence on this question. On this 6-mark question, the average mark was 3.40 for 57% of the available mark.

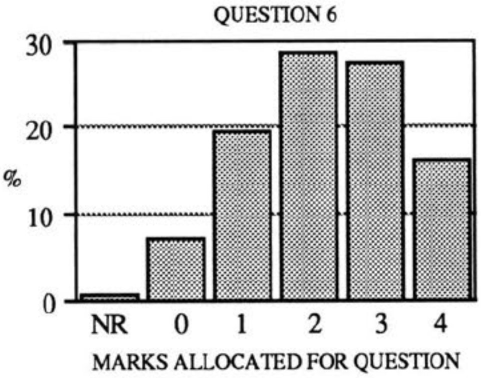


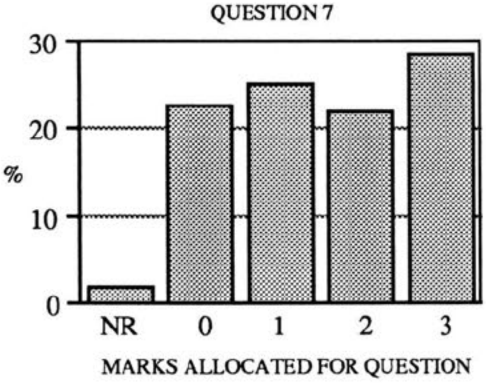
Question 4 was well answered by many students (40.1%). Most students easily recognized that statements a and c were supported by the data presented and that statement b, although true, was neither supported nor negated. Some students restated the assertions instead of using data from the graph to support them. Some students did not seem to understand the meaning of "alkalinity" or "optimal activity." On this 3-mark question, the average mark was 1.99 for 66% of the available mark.



Question 5: Most students understood the format of this question and therefore attempted to complete the chart. Students who achieved the standard of excellence on the examination obtained a mean score of 4.26 out of 5 marks (85%) on this question. Students who did not achieve the acceptable standard obtained a mean score of 1.33 (27%). These students did not understand the significance of diagrams I and II and therefore interchanged hormones and enzymes. They also named substances that are secreted by organs other than the pancreas (small intestine). Some students did not observe the level of specificity indicated by the examples and so gave general answers (pancreatic juice, insulin controls blood sugar). On this 5-mark question, the average mark was 2.70 for 54% of the available mark.

Question 6: Students who obtained a zero mark for part a of this question either did not include the correct unit with their numerical answer or interpreted the vertical axis as presenting a multiplicative increase rather than an additive increase in the number of decibels (20 x instead of 20 dB). Many students had difficulty in accurately communicating their generalization for part b. Because of the sentence syntax or choice of vocabulary, the opposite meaning to what the writer most likely intended was given. Most students identified a manipulated variable represented by the data, but many did not identify or correctly describe the responding variable. On this 4-mark question, the average mark was 2.25 for 56% of the available mark.



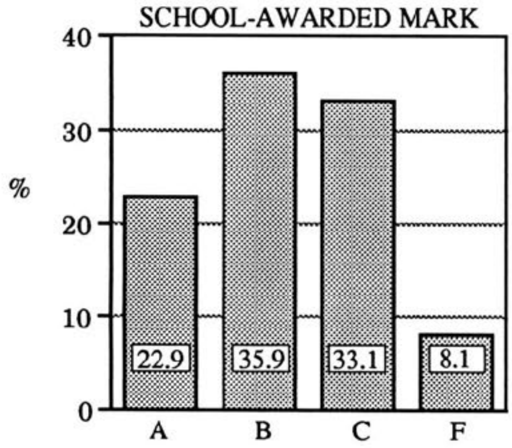


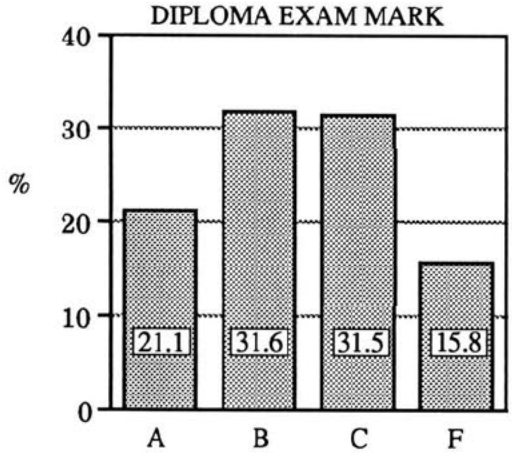
Question 7: Many students obtained a maximum of one mark for this question because they focused on the increase in liquid consumption rather than on the depressant effects of alcohol. Furthermore, these students did not understand the concepts of reabsorption and concentration in reference to water. Too many students discussed changes in concentration of urine in terms of acidity, color, or volume. The students who achieved the standard of excellence on the examination, however, obtained a mean score of 2.62 out of 3 marks (87%). On this 3-mark question, the average mark was 1.54 for 51% of the available mark.

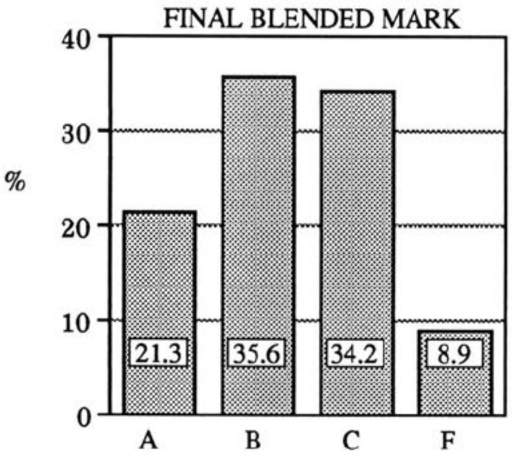
For further information, contact Lowell Hackman, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# Chemistry 30 Diploma Examination Results

## Examiners' Report, January 1991


SCHOOL-AWARDED MARK


DIPLOMA EXAM MARK


FINAL BLENDED MARK

The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the January 1991 administration of the Chemistry 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

### DESCRIPTION OF THE EXAMINATION

The Chemistry 30 Diploma Examination consists of three parts: a multiple-choice section of 49 questions worth 70%, a numerical-response section of seven questions worth 10%, and a written-response section of three questions worth 20%.

### ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 6 987 students who wrote the January 1991 examination.

- 91.1% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 21.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

### PROVINCIAL AVERAGES

- The average school-awarded mark was 67.6%.
- The average diploma examination mark was 65.5%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 67.1%.

## SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared. Results are in average raw scores.

Machine scored: 37.80 out of 56

Written response: 8.00 out of 14

- Course Content
  - Chemical Energetics: 14.25 out of 22
  - Acids and Bases: 15.05 out of 24
  - Oxidation-Reduction: 16.50 out of 24

- Process Skills: 19.49 out of 34
  - Multiple-choice questions 4, 11, 12, 15, 25, 26, 27, 28, 29, 30, 31, 32, 36, 44, 47, 48, and 49; numerical-response questions 2, 4, and 6; and written-response questions 1, 2, and 3.

- Cognitive Levels
  - Knowledge: 14.81 out of 20
  - Comprehension and Application: 26.94 out of 41
  - Higher Mental Activities: 4.05 out of 9

## EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, those with round brackets ( ) indicate numerical-response questions, and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Knowledge | Comprehension and Application | Higher Mental Activities | |
| Chemical Energetics | 1, 2, 3, 5, 7, 9, 13 | 6, 8, 10, 12, 14, (1), [1] | 4, 11, 15, (2), [1] | 32 |
| Acids and Bases | 16, 17, 19, 22, 23, 27 | 18, 20, 21, 24, 25, 26, 28, 29, 30, (3), (4), (5), [2] | 31, 32, [2] | 34 |
| Oxidation-Reduction | 33, 35, 40, 41, 42, 43, 46 | 34, 37, 38, 39, 44, 45, 47, 48, (7), [3] | 36, 49, (6) | 34 |
| Examination Emphasis (%) | 29 | 51 | 20 | 100 |

Note: For reporting purposes, the Higher Mental Activities component of the written-response section has been combined with the Comprehension and Application category.

## RESULTS and EXAMINERS' COMMENTS

This examination has a balance of question types and difficulties. It is designed so that a student capable of achieving the acceptable standard would obtain a mark of 50% or higher and students achieving the standard of excellence would obtain a mark of 80% or higher. Even though the structure of this examination is similar to previous examinations, a greater number of students were successful in meeting the acceptable level. Future examinations will continue to require students to demonstrate clarity in their thinking as well as to demonstrate their understanding of concepts by applying their knowledge to new and novel situations. Students needed to achieve these expectations to be successful on this examination.

## MULTIPLE CHOICE

| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | A | 82.9 | 18 | A | 85.1 | 35 | C | 85.2 |
| 2 | A | 80.7 | 19 | C | 77.0 | 36 | C | 36.3 |
| 3 | D | 58.6 | 20 | B | 92.0 | 37 | A | 79.1 |
| 4 | A | 57.5 | 21 | A | 76.8 | 38 | A | 51.5 |
| 5 | C | 77.5 | 22 | C | 72.0 | 39 | B | 88.0 |
| 6 | D | 72.4 | 23 | D | 79.7 | 40 | A | 60.1 |
| 7 | A | 89.5 | 24 | C | 24.0 | 41 | D | 70.9 |
| 8 | C | 62.6 | 25 | B | 76.4 | 42 | A | 38.3 |
| 9 | B | 86.6 | 26 | A | 71.9 | 43 | A | 90.3 |
| 10 | B | 81.3 | 27 | D | 60.6 | 44 | B | 80.1 |
| 11 | D | 49.5 | 28 | D | 75.2 | 45 | B | 67.8 |
| 12 | B | 66.3 | 29 | C | 80.8 | 46 | D | 71.2 |
| 13 | C | 38.3 | 30 | B | 76.7 | 47 | D | 57.2 |
| 14 | C | 72.1 | 31 | C | 46.9 | 48 | C | 76.1 |
| 15 | D | 49.3 | 32 | B | 46.2 | 49 | B | 81.9 |
| 16 | B | 87.8 | 33 | C | 82.7 | | | |
| 17 | A | 91.5 | 34 | D | 65.3 | | | |

*Difficulty – percentage of students answering the question correctly

## MULTIPLE CHOICE (continued)

The questions that follow are selected to exemplify what is required to meet the acceptable standard and the standard of excellence.

**9.** For the combustion of methanol, $CH_3OH(l) + \frac{3}{2}O_2(g) \rightarrow CO_2(g) + 2H_2O(g)$, which is a component of gasohol, the molar heat of combustion is

**A.** –148.9 kJ/mol
***B.** –638.1 kJ/mol
**C.** –874.3 kJ/mol
**D.** –1116.1 kJ/mol

Question 9 showed that most students (86.6%) could correctly calculate a molar heat of reaction. Those students who answered incorrectly did not appear to make the same mistake, which suggests that students achieving the acceptable standard are able to perform standard single-step stoichiometric calculations required to determine molar heats of reaction.

**24.** A barium hydroxide solution of $1.0 \times 10^{-2}$ mol/L concentration has a pH of

**A.** 2.00
**B.** 12.00
***C.** 12.30
**D.** 13.70

Question 24 showed that 82.0% of the students could recognize a basic solution. Unfortunately, over half these students did not recognize that there is a ratio between solute and dissolved ions, and hence they omitted the 1:2 ratio. Consequently, fewer than one-third of the students (24.0%) correctly answered the question. This result suggests that most students, except those achieving the standard of excellence or close to it, have difficulty recognizing ratios other than 1:1 in acid-base chemistry.

## NUMERICAL RESPONSE

Most students correctly followed the instructions for filling in the answer sheet. Students who wrongly recorded correct answers were not penalized. A smaller number of students who did not round their answers as instructed were penalized, as were students who did not put their answers into scientific notation.

| Question | Answer | Difficulty (%) |
|---|---|---|
| 1 | 57.0 | 80.8 |
| 2 | 3, 9, 4, 8 | 25.9 |
| 3 | 7.35 | 54.3 |
| 4 | 4, 4, 4, 4, | 22.6 |
| 5 | 2, 3, 1, 4 | 77.7 |
| 6 | 1.42 | 11.1 |
| 7 | 1, 3, 4, 2 | 80.0 |

The average for question 6 was 11.1%, and it provided a high base of discrimination between strong and fairly strong students. The most frequent mistake students made (21.9%) was failing to divide the heat of reaction by the moles of reducing agent. This probably came about because the students were unable to identify the reducing agent. A similar question, question 1 in the numerical-response section, required the students to determine the heat of reaction, and 80.8% of the students were successful. The only difference between these two questions was the requirement to combine concepts from different units. The results for question 6 suggest that students achieving the standard of excellence can successfully transfer and apply concepts from one unit to another.

**Use the following information to answer question 6.**

$MgSO_4(s) + 4Zn(s) \rightarrow ZnS(s) + MgO(s) + 3ZnO(s)$

**6.** The molar heat of reaction for the reducing agent in joules per mole is – ________ x $10^5$ J/mol. (Give your answer to three digits.)

The average for question 7 was 80.0%, and it provided a basis for discrimination between fair and weak students. The most common mistake students made (4.2%) was selecting $Fe^{2+}(aq)$ as the next strongest reducing agent after $Cr(s)$. Another common mistake (2.9%) was the listing of the agents from weakest to strongest, which implies that students may have looked up oxidizing agents rather than reducing agents. These errors suggest that students achieving the acceptable standard can do so because they are capable of tasks such as ranking reducing agents by their strength, utilizing the data booklet.

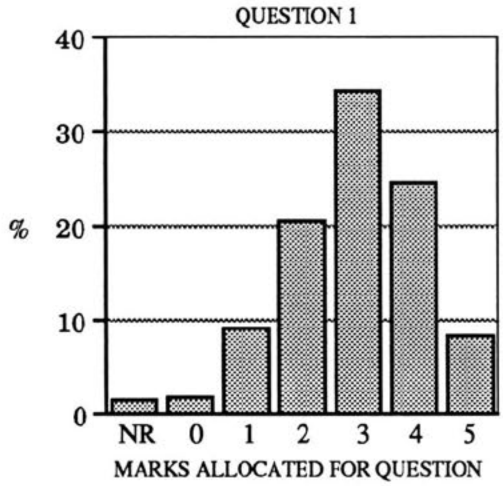
**Use the following information to answer question 7.**

1. $Cr(s)$
2. $H_2O(l)$
3. $Sn^{2+}(aq)$
4. $Fe^{2+}(aq)$

**7.** The order of these reducing agents from strongest to weakest is _____, _____, _____, _____.

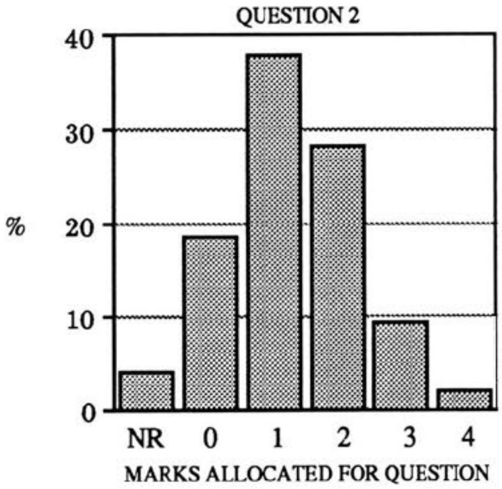
# WRITTEN RESPONSE

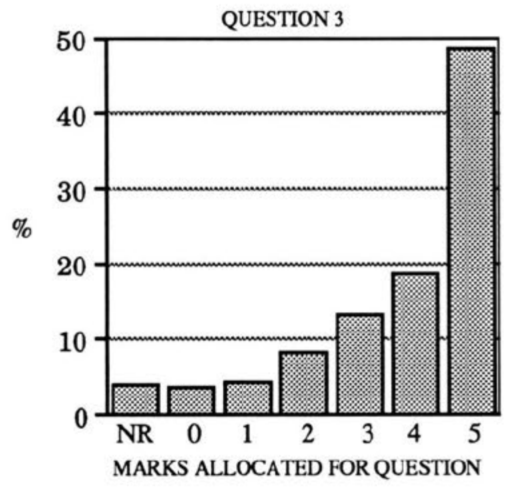
The level of achievement on the written-response section was better than expected; almost three-quarters of the students (74.1%) achieved a mark of 7 or better out of 14. This was due to the excellent performance on question 3. Students' performance on questions 1 and 2 was as expected.



Question 1 results showed that one-third of the students were unable to solve the question and, as a result, obtained a mark of 2 or less. These students had difficulty in balancing a chemical equation, were unable to identify a method that would successfully identify the unknown as gallium, and could not distinguish between heat and molar heat of reaction. They were, however, able to identify the $\Delta t$ of the calorimeter and were able to solve the calorimetric aspect of the problem. Students who attained the acceptable standard but not the standard of excellence recognized the difference between heat and molar heat of reaction and, as a result, were able to determine the correct numeric value. They were also able to identify a variable that could be used to identify the unknown. Unfortunately, they were unable to propose a method that utilized their variable. The two most common errors this group made were that they failed to use units consistently and that they confirmed that the element was gallium rather than identifying the unknown. Students who attained the standard of excellence did so because they identified a variable and stated a method that led to the identification of the element. In addition, they were consistent with their use of significant digits and units throughout. The common error that prevented these students from earning full marks in this question was failing to indicate that the energy was released by either using a negative sign on the $\Delta H^{o}{}_{f}$ value or by stating in a summary statement that the energy was released. On this 5-mark question, the average mark was 2.93 or 59% of the available mark.

Question 2 was answered as well as was expected. It should be noted that the intent of this question was to distinguish between students at the acceptable standard and at the standard of excellence. Therefore, students not attaining the acceptable standard were not expected to score well on this question. These students seemed to understand "endpoint" in terms of indicators and colors. However, they did not frame their response as an experimental procedure. Students who attained the acceptable level on the examination were expected to score either 1 or 2 on this question. They were able to do this by identifying experimental procedures that would obtain results suitable to determine the endpoint and the equivalence points of a titration. However, they were unable to apply this knowledge to distinguish between these points. The most common error of these students was in making the distinction between chemical equivalency and equal concentration or volume. Students who attained the standard of excellence were expected to score 2 or better on this question. They did so by identifying experimental procedures that would work, and they were able to state the similarities and differences between the two points. In general, these students had a good grasp of indicators and related colors, and knew how to select indicators so that the color changed at or close to the equivalence point. Students received lower marks for lack of clarity, implied procedures, and incomplete explanations. On this 4-mark question, the average mark was 1.30 or 33% of the available mark.

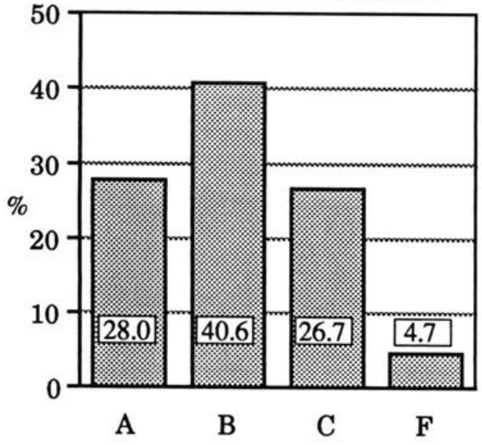


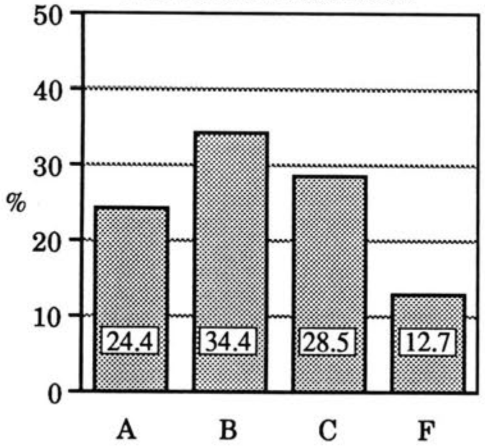


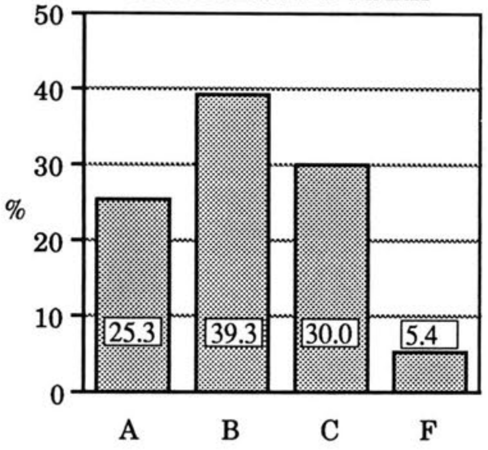
Question 3 was answered better than expected. It should be noted that the intent of this question was to distinguish between students below the acceptable standard and at the acceptable standard. Students who failed to attain the acceptable level on the examination were expected to score either 1 or 2 on this question. They did this by correctly identifying the half-reactions and using this information to write a balanced net ionic equation. In addition, they were able to use appropriate methods for determining the mass of the iron in the sample and the correct number of significant digits in the final answer. The most common mistakes that this group made were omitting or inverting the mole ratio, incorrectly determining the volume of $Cr_2O_7^{2-}{}_{(aq)}$, not using units in calculations, and not including physical states in half-reactions and the balanced chemical equation. Students who attained the acceptable standard were able to determine the correct mole ratio and the volume of $Cr_2O_7^{2-}{}_{(aq)}$, and included states in their half-reactions and the balanced chemical equation. In general, these students performed the stoichiometric process well; they paid careful attention to rounding off to the proper number of significant digits and to the use of units throughout. However, they did not pay the same attention to detail in the overall organization of their responses. On this 5-mark question, the average mark was 3.77 for 75% of the available mark.

For further information, contact Don Loerke, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# Physics 30 Diploma Examination Results
# Examiners' Report, January 1991


SCHOOL-AWARDED MARK


DIPLOMA EXAM MARK


FINAL BLENDED MARK

The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the January 1991 administration of the Physics 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available by the end of 1991.

## DESCRIPTION OF THE EXAMINATION

The Physics 30 Diploma Examination consists of two parts: a multiple-choice section of 49 questions worth 70% and a written-response section of four questions worth 30%.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 3 128 students who wrote the January 1991 examination.

- •94.6% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- •25.3% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

## PROVINCIAL AVERAGES

- •The average school-awarded mark was 70.7%.
- •The average diploma examination mark was 67.7%.
- •The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 69.7%.

## SUBTEST RESULTS

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared. Results are in average raw scores.

Machine scored: 35.1 out of 49

Written response: 12.3 out of 21

- Course Content
  - Light: 10.2 out of 16
  - Electric and Magnetic Fields: 13.2 out of 19
  - Electromagnetic Radiation: 6.6 out of 10
  - Structure of Matter: 9.8 out of 14
  - Modern Physical Theories: 7.6 out of 11
- Process Skills: 22.9 out of 38
  - Multiple-choice questions 6, 8, 9, 14, 17, 18, 19, 21, 27, 28, 31, 33, 35, 39, 43, 44, and 49; and written-response questions 1, 2, 3, and 4.
- Cognitive Levels
  - Knowledge: 13.2 out of 17
  - Comprehension and Application: 23.9 out of 35
  - Higher Mental Activities: 10.3 out of 18

## EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in January 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Knowledge | Comprehension and Application | Higher Mental Activities | |
| Light | 1, 2, 5, 7 | 3, 4, 6, 8, 9 | [4] | 23 |
| Electric and Magnetic Fields | 10, 13, 15, 24 | 11, 12, 16, 17, 18, 19, 20, 22, 23, [2] | 14, 21 | 27 |
| Electromagnetic Radiation | 25, 26, 32 | 27, 28, 29, 30, 33, 35 | 31 | 14 |
| Structure of Matter | 34, 41, 42 | 36, 37, 38, 40, 43 [1] | 39, 44 | 20 |
| Modern Physical Theories | 46, 47, 48 | 45, 49 | [3] | 16 |
| Examination Emphasis (%) | 24 | 50 | 26 | 100 |

## RESULTS and EXAMINERS' COMMENTS

The examination has a balance of question types and difficulties. It is designed so that students capable of achieving the acceptable standard would obtain a mark of 50% or higher and students achieving the standard of excellence would obtain a mark of 80% or higher.

### MULTIPLE CHOICE

| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | A | 90.3 | 18 | A | 35.5 | 35 | C | 68.5 |
| 2 | C | 72.7 | 19 | D | 88.5 | 36 | B | 46.9 |
| 3 | C | 74.4 | 20 | B | 87.7 | 37 | D | 75.3 |
| 4 | B | 81.3 | 21 | C | 34.9 | 38 | A | 70.7 |
| 5 | B | 79.0 | 22 | D | 73.0 | 39 | C | 65.3 |
| 6 | A | 61.6 | 23 | B | 85.9 | 40 | B | 75.0 |
| 7 | B | 64.7 | 24 | A | 74.6 | 41 | B | 61.6 |
| 8 | D | 76.5 | 25 | C | 77.9 | 42 | D | 75.5 |
| 9 | C | 76.8 | 26 | B | 81.5 | 43 | D | 48.6 |
| 10 | D | 89.0 | 27 | C | 59.7 | 44 | C | 77.6 |
| 11 | C | 96.2 | 28 | C | 43.3 | 45 | A | 71.9 |
| 12 | D | 76.6 | 29 | A | 61.2 | 46 | B | 79.8 |
| 13 | B | 77.4 | 30 | A | 90.7 | 47 | C | 75.6 |
| 14 | C | 78.5 | 31 | D | 39.4 | 48 | D | 79.8 |
| 15 | A | 87.3 | 32 | D | 76.9 | 49 | C | 62.6 |
| 16 | D | 63.2 | 33 | B | 60.3 | | | |
| 17 | A | 77.4 | 34 | A | 77.3 | | | |

*Difficulty – percentage of students answering the question correctly

## MULTIPLE CHOICE (continued)

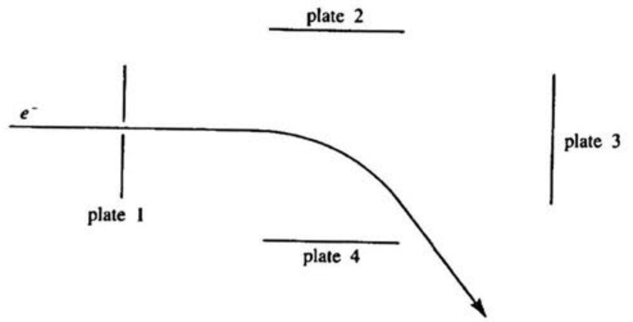
A high level of competence in calculations was expected from all students. Students achieving the standard of excellence were expected to apply knowledge to unusual problems and to use scientific generalizations effectively. Students' performance on the multiple-choice section of the examination was generally satisfactory. As on previous examinations, students found calculation questions the easiest and had the most difficulty with questions demanding the use of unit analysis and vectors. Detailed comments on questions 14 and 18 follow.

**14.** If a $3.0 \times 10^{-6}$ C positive charge with a mass of $4.0 \times 10^{-3}$ kg is released 6.0 cm from a fixed $2.0 \times 10^{-6}$ C positive charge, the magnitude of its initial acceleration is

**A.** $1.5 \times 10^{1}$ m/s$^2$
**B.** $2.3 \times 10^{2}$ m/s$^2$
* **C.** $3.7 \times 10^{3}$ m/s$^2$
**D.** $1.3 \times 10^{9}$ m/s$^2$

Question 14 tested students' understanding of how Newton's laws are related to Coulomb forces. Students were required to combine two equations from the *Physics Data Booklet* to obtain the answer. Over three-quarters of the students answered this question correctly, including well over half of those whose examination scores were 50% or less. This indicates that teachers can expect lower achieving students to do problems requiring more complex two-step calculations as well as those involving single-step substitution and calculation.

**Use the following information to answer question 18.**



A beam of electrons moves horizontally to the right and enters the region between parallel plates 2 and 4, where the beam is deflected by an electric field as shown.

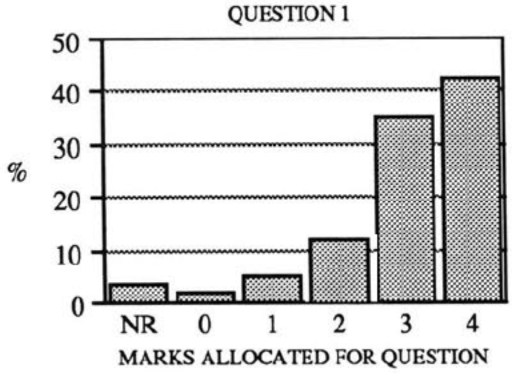
**18.** The direction of the electric field that causes this vertical deflection is from

* **A.** plate 4 to plate 2
**B.** plate 2 to plate 4
**C.** plate 3 to plate 1
**D.** plate 1 to plate 3

Question 18 required students to understand the interaction between an electric field and a negatively charged particle. The key elements of the interaction were that the electric force was attractive and that the direction of the field was opposite to that of the force. A large proportion of students whose examination scores were 80% or higher were able to answer this question correctly. Most of the students with marks lower than 80% confused the directions of the field and the force, and therefore selected answer B.

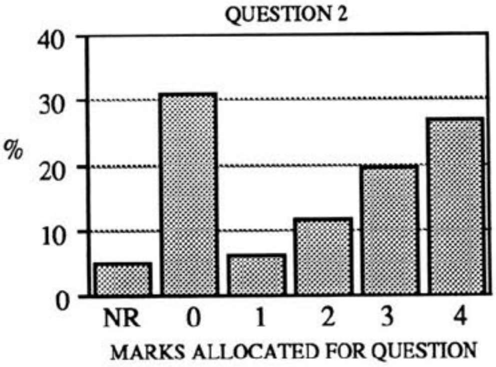
## WRITTEN RESPONSE

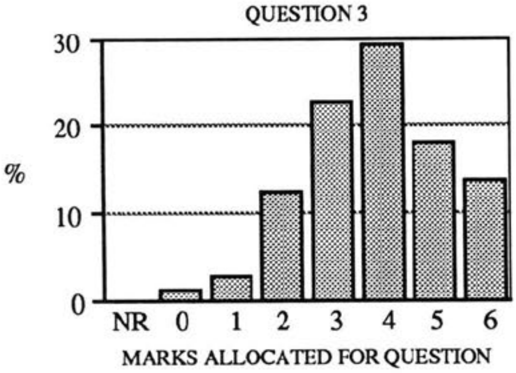
The four questions in the written-response section were created from four of the five strands for Physics 30. Students' problem-solving skills were tested most in question 2, in part b of question 3, and in part b of question 4. Students receiving an examination mark of 50% were expected to get 3 out of a possible 4 marks on question 1. Few of these students were expected to obtain any marks on question 2. However, they were expected to receive half marks on question 3 and 2 out of 7 marks on question 4. Students performing at the standard of excellence were expected to obtain near full marks on questions 1 and 2, and 5 marks on each of questions 3 and 4.



Students performed very well on question 1. Three-quarters of them received a score of 3 or 4 out of a possible 4 marks. Students were able to find a value for the wavelength of light and successfully solve for the kinetic energy of the photoelectrons. Even those students who found an incorrect wavelength were able to use their value correctly to get an answer for photoelectron energy. On this 4-mark question, the average score was 3.03 or 76%.

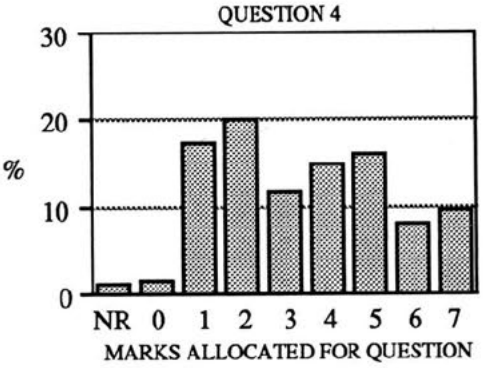
Question 2 proved very difficult for students achieving at or below the acceptable standard but was answered quite well by the others. Students were required to use the law of conservation of charge twice to determine the magnitude of each of the two charges in terms of the initial charge *Z*. Students with better algebraic skills gave solutions involving the use of ratios. Other students presented solutions that used hypothetical values for Z and then used the given force to find the corresponding value of *R*. These values were then used with the new values of charge to calculate the magnitude of the new force. Students also used a hypothetical value for *R* in the same way. There was a significant number of NO RESPONSES to this question. This can be attributed to students feeling uncomfortable when required to use ratios in an algebraic solution. On this 4-mark question, the average score was 1.96 or 49%.





Question 3 was at least attempted by 99.9% of the students. It required students to graph two quantities correctly and then to use the slope of this graph to find Planck's constant. Most students were able to find a value for the slope, but not all were able to use it correctly. Instead, they assumed that $2.16 \times 10^{-42}$ kg•m was Planck's constant and did not consider whether their answer was reasonable. A significant number of students did not consider the slope to be a suitable averaging technique. Rather, they chose to find six individual values of *h* and then found the mean of these values. However, since this method was valid only if the best-fit line on their graph passed through the origin, many students lost marks for this part. On this 6-mark question, the average score was 3.85 or 64%.

Question 4 proved to be a very interesting question to mark. Students demonstrated a very good knowledge of high school physics in the design that they chose. Often the simplest designs received nearly full marks. Some students chose to repeat the experiment as stated while others used concepts only from Physics 30 in their experimental design. The most successful designs included those that excluded the other two hypotheses rather than controlled them. Other successful designs used concepts from Physics 10 and Physics 20. However, approximately one-quarter of the students failed to understand that an experimental design was necessary. These students generally discussed the validity of one of the three hypotheses without ever mentioning an experimental design, and therefore did very poorly on the question, even though they demonstrated a broad knowledge of physical principles. It is important to note that students should not feel restricted to concepts taught at the Physics 30 level on these types of questions. As well, students should be encouraged to use a higher degree of precision in their answers to future discussion-type problems. On this 7-mark question, the average score was 3.47 or 50%.



For further information, contact Craig Emter, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# APPENDIX D
# STUDENT MARKS AND EXAMINERS' REPORTS
# JUNE 1991

## June 1991 Examination Administration and June 1990 Final Course Mark*

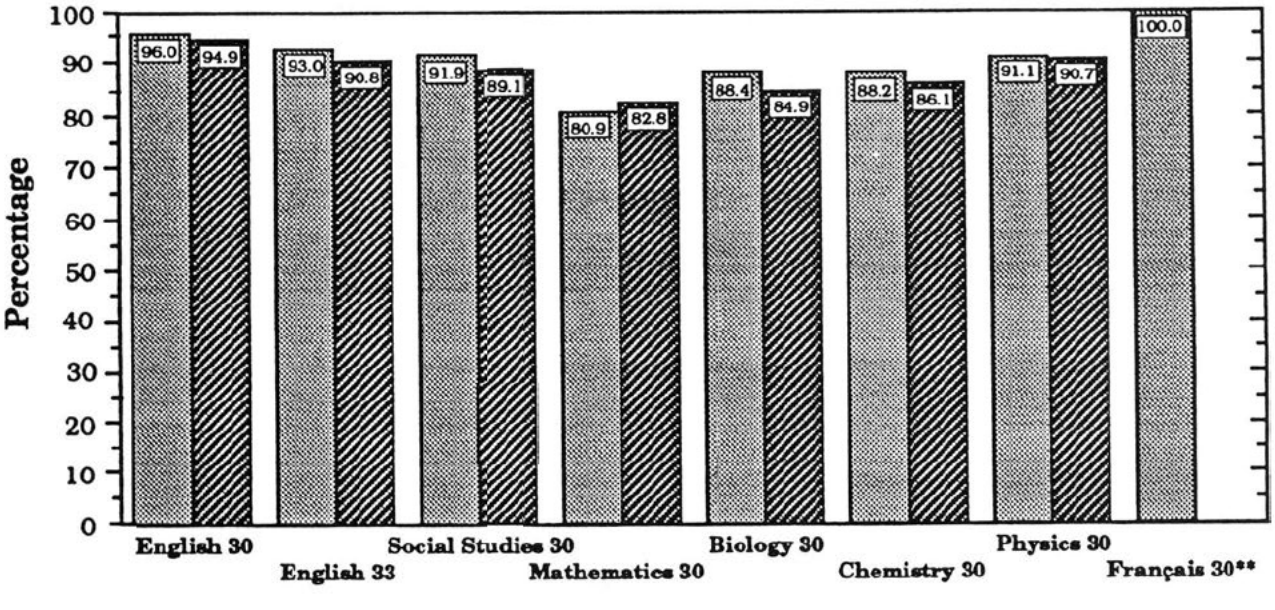
| | June 1991 | | | |
|---|---|---|---|---|
| DIPLOMA EXAMINATION COURSE | School-Awarded Mark | Diploma Examination Mark | Final Blended Mark | June 1990 Final Blended Mark |
| ENGLISH 30 | | | *N* = 13 854 | *N* = 13 506 |
| A (80-100%) | 17.5 | 9.2 | 11.0 | 12.8 |
| B (65-79%) | 41.0 | 38.1 | 42.6 | 40.6 |
| C (50-64%) | 34.4 | 43.2 | 42.4 | 41.5 |
| F (0-49%) | 7.1 | 9.5 | 4.0 | 5.1 |
| Mean | 66.7 | 64.0 | 65.8 | 65.8 |
| Standard Deviation | 12.5 | 11.3 | 10.7 | 11.4 |
| ENGLISH 33 | | | *N* = 4 829 | *N* = 4 589 |
| A (80-100%) | 4.4 | 6.6 | 3.4 | 2.3 |
| B (65-79%) | 31.1 | 39.4 | 35.7 | 30.3 |
| C (50-64%) | 50.5 | 40.6 | 53.9 | 58.2 |
| F (0-49%) | 14.0 | 13.4 | 7.0 | 9.2 |
| Mean | 59.9 | 62.8 | 61.8 | 60.3 |
| Standard Deviation | 11.2 | 11.7 | 9.7 | 9.6 |
| FRANÇAIS 30 | | | *N* = 35 | *N* = 3 |
| A (80-100%) | 37.1 | 11.4 | 17.1 | n/a |
| B (65-79%) | 48.6 | 54.3 | 60.0 | n/a |
| C (50-64%) | 14.3 | 31.4 | 22.9 | n/a |
| F (0-49%) | 0.0 | 2.9 | 0.0 | n/a |
| Mean | 74.2 | 66.2 | 70.5 | n/a |
| Standard Deviation | 10.0 | 10.3 | 9.0 | n/a |
| SOCIAL STUDIES 30 | | | *N* = 11 874 | *N* = 10 823 |
| A (80-100%) | 20.7 | 16.7 | 17.4 | 15.4 |
| B (65-79%) | 37.5 | 34.5 | 36.9 | 34.5 |
| C (50-64%) | 35.5 | 31.2 | 37.6 | 39.2 |
| F (0-49%) | 6.3 | 17.6 | 8.1 | 10.9 |
| Mean | 67.4 | 64.3 | 66.1 | 64.6 |
| Standard Deviation | 12.7 | 14.8 | 12.9 | 13.3 |

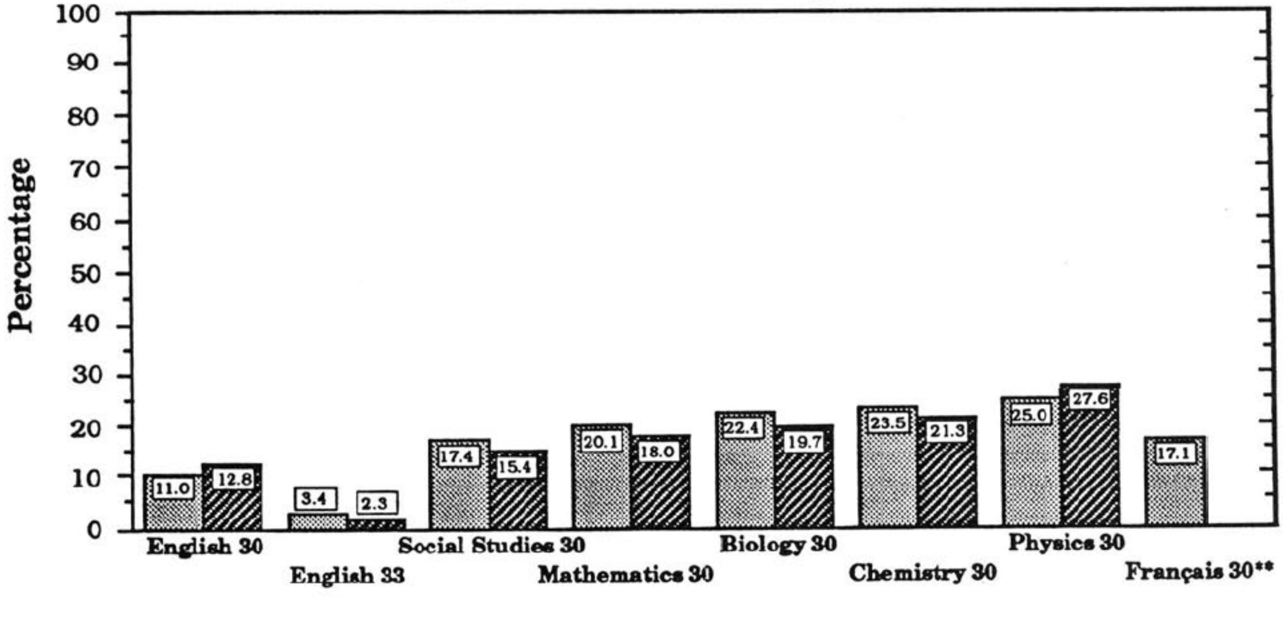
*The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.

| DIPLOMA EXAMINATION COURSE | June 1991 | | | June 1990 Final Blended Mark |
|---|---|---|---|---|
| | School-Awarded Mark | Diploma Examination Mark | Final Blended Mark | |
| **MATHEMATICS 30** | | | *N* = 10 278 | *N* = 10 098 |
| A (80-100%) | 21.8 | 20.7 | 20.1 | 18.0 |
| B (65-79%) | 31.5 | 18.6 | 24.8 | 26.4 |
| C (50-64%) | 35.4 | 26.2 | 36.0 | 38.5 |
| F (0-49%) | 11.3 | 34.5 | 19.1 | 17.2 |
| Mean | 66.2 | 59.4 | 63.2 | 63.1 |
| Standard Deviation | 15.0 | 20.4 | 16.9 | 15.9 |
| **BIOLOGY 30** | | | *N* = 11 078 | *N* = 10 591 |
| A (80-100%) | 23.4 | 23.3 | 22.4 | 19.7 |
| B (65-79%) | 34.5 | 28.2 | 32.1 | 29.1 |
| C (50-64%) | 33.5 | 26.7 | 33.9 | 36.1 |
| F (0-49%) | 8.6 | 21.8 | 11.6 | 15.1 |
| Mean | 67.6 | 64.5 | 66.4 | 64.4 |
| Standard Deviation | 13.6 | 17.4 | 14.8 | 15.1 |
| **CHEMISTRY 30** | | | *N* = 8 610 | *N* = 8 125 |
| A (80-100%) | 26.5 | 23.0 | 23.5 | 21.3 |
| B (65-79%) | 35.3 | 27.5 | 32.8 | 30.5 |
| C (50-64%) | 29.9 | 27.3 | 31.9 | 34.3 |
| F (0-49%) | 8.3 | 22.2 | 11.8 | 13.9 |
| Mean | 68.7 | 64.1 | 66.8 | 65.5 |
| Standard Deviation | 14.1 | 17.7 | 15.2 | 15.6 |
| **PHYSICS 30** | | | *N* = 4 778 | *N* = 4 768 |
| A (80-100%) | 34.3 | 20.8 | 25.0 | 27.6 |
| B (65-79%) | 36.8 | 28.3 | 35.5 | 33.9 |
| C (50-64%) | 23.8 | 29.6 | 30.6 | 29.2 |
| F (0-49%) | 5.1 | 21.3 | 8.9 | 9.3 |
| Mean | 71.9 | 63.9 | 68.3 | 68.8 |
| Standard Deviation | 13.4 | 16.8 | 14.3 | 14.9 |

*The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.

# Diploma Examination Courses
# Final Blended Marks
## June 1991 and June 1990


Percentage of Students Achieving Acceptable Standard*


Percentage of Students Achieving Standard of Excellence*

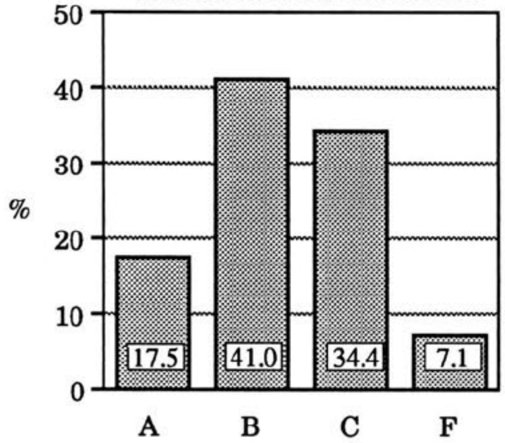
░ 1991 ▨ 1990

*Acceptable Standard is 50% or higher
Standard of Excellence is 80% or higher

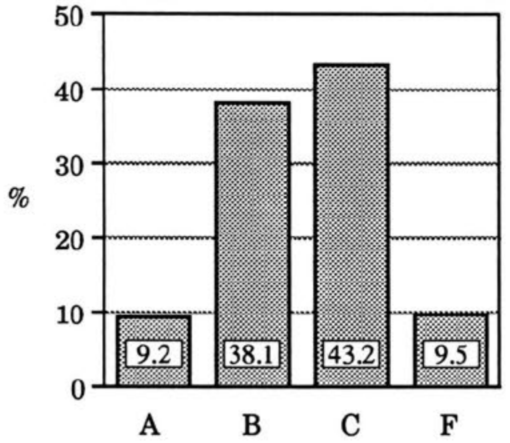
**Français 30 was first administered in January 1990. The results for June 1990 are not reported because only 3 students wrote the examination.

# English 30 Diploma Examination Results
# Examiners' Report, June 1991

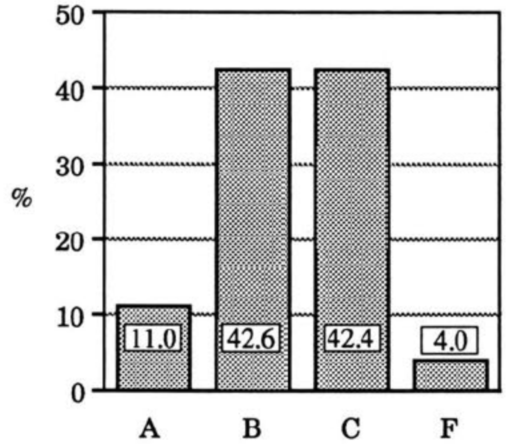
SCHOOL-AWARDED MARK



DIPLOMA EXAMINATION MARK



FINAL BLENDED MARK



The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the English 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

## DESCRIPTION OF THE EXAMINATION

The English 30 Diploma Examination consists of two parts: a written-response section and a multiple-choice section. Each part is worth 50% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 13 854 students who wrote the June 1991 examination.

- 96.0% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 11.0% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

The competence of students achieving the standard of excellence in English 30 was impressive. However, skills demonstrated at the satisfactory level tended to be uneven; students showed ability on occasion to use language well but this was not always sustained.

## PROVINCIAL AVERAGES

- The average school-awarded mark was 66.7%.
- The average diploma examination mark was 64.0%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 65.8%.

# PART A: WRITTEN RESPONSE

Part A: Written Response is written at a different time from Part B: Reading (Multiple Choice). Students are required to complete two writing assignments related to the same piece of literature. Both assignments assess a variety of writing and thinking skills.

Readers will find the results most meaningful in the context of the assignments and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. Such work exceeds the pass mark of 50%. The scoring guides that describe proficiency levels are in the *English 30 Diploma Examination Update for 1992*, which is available in all schools.

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each category contributes to the total mark (Parts A and B combined), and the percentage of students achieving at the various levels.

## EXAMINATION BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

| DESCRIPTION OF THE WRITING ASSIGNMENT | SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) EXCELLENT | (4) PROFICIENT | (3) SATISFACTORY | (2) LIMITED | (1) POOR | (0) INS |
| **Minor Assignment** The student is required to write a personal response to the reading selection provided in the examination. | 1. Thought and Detail | 7.5 | 3.4 | 31.8 | 55.5 | 8.3 | 0.7 | 0.3 |
| | 2. Writing Skills | 7.5 | 3.0 | 31.0 | 56.0 | 9.0 | 0.7 | 0.3 |
| **Major Assignment** The major assignment maintains a thematic connection to the minor assignment. The student is required to demonstrate an appreciation of literary works studied through a discussion of theme and the literary techniques that support that theme. The student is also required to synthesize thoughts clearly and correctly in writing. | 1. Total Impression | 5.0 | 2.3 | 19.1 | 58.0 | 19.3 | 1.0 | 0.3 |
| | 2. Thought and Detail | 12.5 | 2.3 | 19.9 | 51.1 | 24.7 | 1.6 | 0.3 |
| | 3. Organization | 7.5 | 2.5 | 22.0 | 61.2 | 13.5 | 0.6 | 0.3 |
| | 4. Matters of Choice | 5.0 | 3.0 | 24.4 | 59.7 | 11.8 | 0.9 | 0.3 |
| | 5. Matters of Convention | 5.0 | 4.3 | 30.0 | 51.8 | 12.4 | 1.2 | 0.3 |

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

## EXAMINERS' COMMENTS

### MINOR ASSIGNMENT: Personal Response to Literature

The examination selection, the poem "The Song of Wandering Aengus," describes the power of imagination to inspire, motivate, and provide purpose in our lives.

Students interpreted the poem either literally, i.e., that the speaker has lost his love but will go on seeking her until she is found once again, or metaphorically, i.e., as an expression of an ideal, a fantasy, or a dream. Some students interpreted the poem both literally and metaphorically.

The topic (the influence of imagination) seems to have stimulated students to be conscientious rather than imaginative. Students achieving overall scores of (3) SATISFACTORY chose an appropriate quotation and usually illustrated or supported the quotation with an explanation involving imagining a desired result and eventually achieving it, or they discussed the importance of being imaginative.

Students writing at the (3) SATISFACTORY level demonstrated that they have the conventions of language under control. They tended to use language in a correct, practical way to "get the job done" rather than to enhance the details they are communicating.

Students achieving overall scores of (4) PROFICIENT and (5) EXCELLENT usually went beyond the basic requirements of the task by moving, for instance, from imagination as a positive attribute to a number of examples of its value, or by using a quotation as a "springboard," rather than as the focus of the writing, and moving to the broader and more varied contribution of imagination to society as a whole.

### MAJOR ASSIGNMENT: Literature Composition

Students demonstrated through their responses to the major assignment that they interpreted imagination as mind, feelings, thoughts, ideas, ideals, dreams, goals, illusions, fantasies, creativity, and/or inventiveness. They seemed to have no problem selecting an appropriate literary work on which to base their discussions. Generally, writing was more focused because students did not rely on plot details to support their theses.

Students achieving overall scores of (3) SATISFACTORY frequently presented a reasonable controlling idea but did not always develop it completely. They identified characters who have been influenced positively or negatively by dream, illusion, fantasy, etc., but they often neglected to explore what the author might be saying about imagination and its significance. These students often implicitly acknowledged the necessity of imagination and then described characters whose excess of imagination affected them negatively.

Students achieving overall scores of (4) PROFICIENT and (5) EXCELLENT showed confidence in their use of language and in their ability to interpret the literature insightfully. These students were able to formulate theses that moved beyond the conventional notion of imagination as having positive or negative influence to more insightful interpretations; for example, using imagination to cope with an unacceptable reality.

# PART B: READING (MULTIPLE CHOICE)

## RESULTS

Results are in average raw scores.

Total Part B: 45.5 out of 70

Subtest Results:*

- Course Content
  - Meanings: 17.1 out of 27
  - Critical Response: 17.5 out of 26
  - Human Experience and Values: 10.9 out of 17

* Readers are cautioned **not** to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

**EXAMINATION BLUEPRINT**

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in June 1991 according to these classifications.

| Question Type by Course Content | Question Type by Thinking Skills | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Literal Understanding | Inference and Application | Evaluation | |
| Meanings | 6, 11, 18, 20, 29, 66 | 2, 4, 12, 13, 17, 22, 25, 27, 30, 31, 43, 44, 45, 46, 47, 53, 63, 67 | 10, 14, 26, 34 | 28 items (20%) |
| Critical Response | 64 | 3, 5, 7, 8, 15, 19, 23, 33, 36, 40, 48, 50, 55, 57, 62, 65 | 1, 16, 24, 28, 32, 42, 49, 61 | 25 items (18%) |
| Human Experience and Values | | 21, 35, 38, 39, 51, 52, 56, 59, 60, 70 | 9, 37, 41, 54, 58, 68, 69 | 17 items (12%) |
| Examination Emphasis (%) | 7 items (5%) | 44 items (31%) | 19 items (14%) | 70 items (50%) |

The following table shows question-by-question results and the keyed answers. A parallel table in the school and jurisdiction reports shows the percentage of students who selected each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their own programs.

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 68.8 | 15 | D | 76.7 | 29 | C | 55.0 | 43 | A | 61.8 | 57 | C | 73.3 |
| 2 | A | 48.1 | 16 | A | 76.9 | 30 | C | 81.8 | 44 | C | 38.2 | 58 | D | 39.9 |
| 3 | B | 61.2 | 17 | B | 30.2 | 31 | B | 85.1 | 45 | D | 73.5 | 59 | B | 42.7 |
| 4 | D | 53.5 | 18 | B | 82.7 | 32 | C | 84.2 | 46 | C | 55.0 | 60 | B | 63.6 |
| 5 | A | 78.5 | 19 | B | 57.2 | 33 | B | 85.7 | 47 | D | 68.2 | 61 | D | 81.8 |
| 6 | C | 85.2 | 20 | D | 50.9 | 34 | C | 64.1 | 48 | A | 45.2 | 62 | A | 62.4 |
| 7 | D | 47.1 | 21 | B | 58.6 | 35 | C | 73.1 | 49 | A | 71.6 | 63 | C | 37.8 |
| 8 | C | 60.9 | 22 | D | 70.9 | 36 | D | 72.9 | 50 | B | 49.3 | 64 | A | 69.4 |
| 9 | B | 60.9 | 23 | A | 77.1 | 37 | B | 67.3 | 51 | C | 77.1 | 65 | C | 43.1 |
| 10 | D | 82.9 | 24 | C | 57.7 | 38 | A | 86.2 | 52 | D | 74.5 | 66 | D | 74.2 |
| 11 | B | 79.0 | 25 | D | 78.0 | 39 | C | 74.8 | 53 | A | 28.3 | 67 | A | 55.0 |
| 12 | D | 73.7 | 26 | C | 51.8 | 40 | A | 51.8 | 54 | B | 64.3 | 68 | C | 46.4 |
| 13 | B | 72.1 | 27 | D | 77.8 | 41 | D | 89.3 | 55 | C | 60.2 | 69 | D | 58.8 |
| 14 | A | 79.0 | 28 | B | 84.7 | 42 | B | 66.9 | 56 | B | 51.8 | 70 | B | 59.6 |

*Difficulty – percentage of students answering the question correctly

## EXAMINERS' COMMENTS

During the marking session, a committee of English 30 classroom teachers reviewed the June 1991 English 30 Part B: Reading (Multiple Choice) examination to determine whether the standards embedded in the readings and the questions were appropriate and fair. The committee members concurred that the June 1991 examination set a reasonable but very high standard of achievement for graduating English 30 students. Committee members also stated that the examination would clearly distinguish between high-achieving and low-achieving students.

Student performance on the Part B section in some cases far exceeded the committee's expectations. For example, the committee felt that Selection II, the excerpt from *Two Sides to a Tortoise,* is the most challenging passage ever to appear on an English 30 examination and would be too difficult for many students. Perhaps students recognized immediately that the passage and accompanying questions could require two and possibly three readings. Perhaps its position as the second reading meant that students were still fresh and sharp and conscientious when answering the questions. Whatever the case, the mean difficulty for this set of 12 questions is 67.3%, indicating that many students are capable of effective close reading and of understanding difficult material.

The following table gives results for three of the questions concerning the excerpt from *Songs My Mother Taught Me*, considered by the teacher committee to be very accessible to and appropriate for graduating English 30 students. For each question, three statistical references are given: the percentage of all students writing the examination who chose the correct answer, the percentage of students achieving the **standard of excellence** (80% or higher, or A, on the whole examination) who chose the correct answer, and the percentage of students achieving the **acceptable standard** (but not receiving marks higher than 64%, or C, on the whole examination) who chose the correct answer. The comments following the table discuss some of the decisions that students may have made and some of the skills that they may have used to answer correctly.

**Percentage of Students Correctly Answering Selected Multiple-Choice Questions**

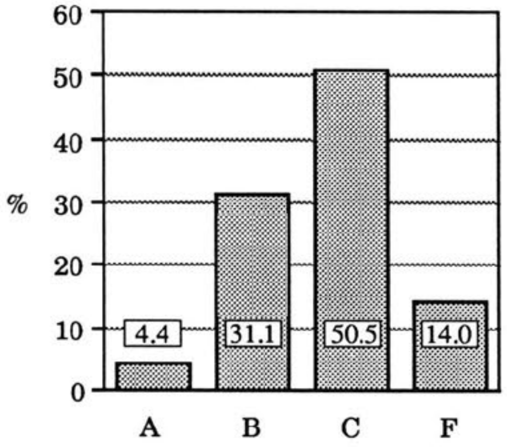
| Student Group | Question Number | | |
|---|---|---|---|
| | 53 | 56 | 59 |
| All students | 28.3 | 51.8 | 42.7 |
| Students achieving the **standard of excellence** (80% or higher, or A) on the whole examination | 69.3 | 89.4 | 60.2 |
| Students achieving the **acceptable standard** who received marks between 50% and 64%, or C, on the whole examination | 15.4 | 37.0 | 37.1 |

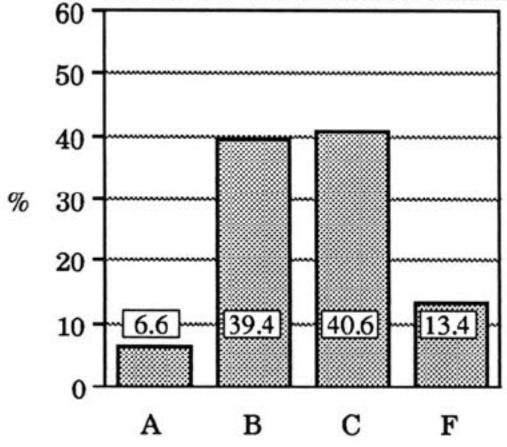
## EXAMINERS' COMMENTS (continued)

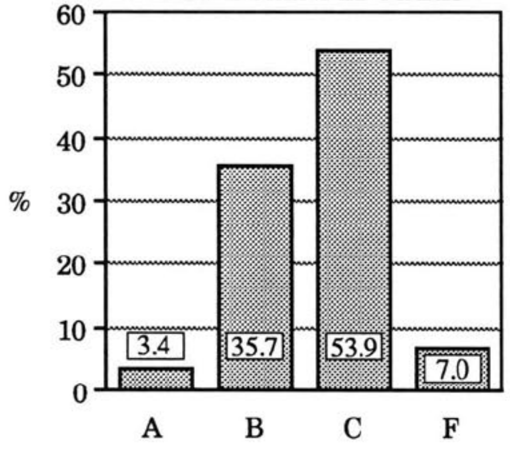
| Questions | Comments |
|---|---|
|  | Questions 53, 56, and 59 are from a set of 11 questions based on an excerpt from *Songs My Mother Taught Me* by Audrey Thomas. |
| **53.** The word "pretense" (line 54) means<br>***A.** deceptive pose<br>**B.** foolish attempt<br>**C.** unworthy ambition<br>**D.** inevitable failure | **Question 53** was assessed as a very easy vocabulary question by the examination review committee. However, only 28.3% of all students answered it correctly. The question may have seemed deceptively straightforward to less careful readers who may have interpreted the question as evaluating the speaker's behavior rather than as identifying the closest meaning of the word "pretense." Of the students who achieved the standard of excellence on the whole examination (Parts A and B combined), 69.3% answered correctly. Of those who achieved marks between 50% and 64% (a letter grade of C) on the whole examination, only 15.4% chose the correct alternative. In this same group (those students achieving marks between 50% and 64%), 45.6% chose alternative B, and 23.2% chose alternative D. Did these students see Isobel, the speaker, as a failure rather than as a young person making her way through a difficult time in her life? |
| **56.** The mother's "golden girl" concept of Isobel (line 70) and Isobel's vision of herself as "Rapunzel-like" (line 95) suggest that mother and daughter are<br>**A.** artistic<br>***B.** romantic<br>**C.** cultured<br>**D.** reflective | **Question 56** achieved the highest correlation (for Part B) between student success on a single question and student success on the examination as a whole. The question required students to appreciate not only the mother's view of the daughter but also the mother's own character as subtly presented by her daughter. The question also assumes that students understand the images of "golden girl" and "Rapunzel" as romantic ideals. Successful students would recognize the appropriateness of alternative B in the sense that "romantic" means imaginative but impractical. The question was answered correctly by 51.8% of all students. Of the students who achieved the standard of excellence on the whole examination (Parts A and B combined), 89.4% chose the correct alternative. Of those who achieved marks between 50% and 64% (a letter grade of C) on the whole examination, 37.0% chose the correct alternative. Alternative D was chosen by 31% of all students, perhaps because they mistakenly connected "reflective" with the word "vision" in the stem of the question. |
| **59.** The concept presented in the phrase "locked in the silence of their own unhappiness" (line 129) serves to contrast with<br>**A.** "In many ways my upbringing had been...sheltered" (lines 107-108)<br>***B.** "the first truly independent act of my life" (line 117)<br>**C.** "What did I expect to see reflected there?" (lines 121-122)<br>**D.** "They could stop me if they wanted to" (line 127) | **Question 59** proved to be very difficult, with only 42.7% of all students choosing B, the correct answer. The question requires that students extract a concept from a metaphorical phrase and identify a contrasting concept from among the alternatives. The entire excerpt examines the difficulty experienced by a young woman as she recognizes the need to let go of childhood expectations and begin to take responsibility for herself. As she makes the decision to work at the state hospital, she is consciously leaving the secure but oppressive circle of her family. Of the students who achieved the standard of excellence on the whole examination (Parts A and B combined), 60.2% answered correctly. Of those who achieved marks between 50% and 64% (a letter grade of C) on the whole examination, 37.1% answered correctly. Successful students would have recognized that the contrast referred to in the question represents the central tension of the story. |

For further information, contact Gail Gates, Tom Dunn, or Elana Scraba at the Student Evaluation Branch, 427-2948.

# English 33 Diploma Examination Results
# Examiners' Report, June 1991


SCHOOL-AWARDED MARK


DIPLOMA EXAMINATION MARK


FINAL BLENDED MARK

The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the English 33 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

## DESCRIPTION OF THE EXAMINATION

The English 33 Diploma Examination consists of two parts: a written-response section and a multiple-choice section. Each part is worth 50% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 4 829 students who wrote the June 1991 examination.

- 93.0% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 3.4% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

Achievement in English 33 has continued to improve. For example, students' writing was longer and more complex than in the past.

## PROVINCIAL AVERAGES

- The average school-awarded mark was 59.9%.
- The average diploma examination mark was 62.8%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 61.8%.

## PART A: WRITTEN RESPONSE

Part A: Written Response is written at a different time from Part B: Reading (Multiple Choice). Students are required to complete three writing assignments, each of which assesses a variety of writing and thinking skills.

Readers will find the results most meaningful in the context of the assignments and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. Such work exceeds the pass mark of 50%. The scoring guides that describe proficiency levels are in the *English 33 Diploma Examination Update for 1992,* which is available in all schools.

The table below outlines the requirements for each assignment, the categories for scoring each assignment, the amount each category contributes to the total mark (Parts A and B combined), and the percentage of students achieving at the various levels.

### EXAMINATION BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

| DESCRIPTION OF THE WRITING ASSIGNMENT | SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) EXCELLENT | (4) PROFICIENT | (3) SATISFACTORY | (2) LIMITED | (1) POOR | (0) INS |
| **Personal Response to Literature**<br>The student is required to discuss an aspect of literature from a personal perspective. | 1. Thought and Detail | 10.0 | 1.3 | 22.4 | 55.9 | 19.0 | 1.2 | 0.2 |
| | 2. Organization | 5.0 | 1.2 | 21.2 | 61.8 | 14.9 | 0.6 | 0.2 |
| | 3. Matters of Choice | 5.0 | 1.5 | 20.3 | 65.0 | 11.9 | 1.1 | 0.2 |
| | 4. Matters of Convention | 5.0 | 2.4 | 24.8 | 54.2 | 16.6 | 1.9 | 0.2 |
| **Functional Writing**<br>The assignment is functional in nature. The student is required to write about a given situation. | 1. Thought and Detail | 10.0 | 1.4 | 20.8 | 59.0 | 17.7 | 0.7 | 0.4 |
| | 2. Organization | 2.5 | 1.5 | 18.9 | 63.1 | 15.6 | 0.4 | 0.4 |
| | 3. Writing Skills | 2.5 | 1.9 | 19.8 | 57.4 | 19.0 | 1.6 | 0.4 |
| **Response to Visual Communication**<br>The writing assignment is connected to one or more photographs and/or cartoons. The student is required to write about main ideas and techniques of visual communication. | 1. Thought and Detail | 5.0 | 1.1 | 12.8 | 52.9 | 30.5 | 1.6 | 1.1 |
| | 2. Organization | 2.5 | 0.8 | 10.4 | 57.1 | 29.2 | 1.3 | 1.1 |
| | 3. Writing Skills | 2.5 | 1.2 | 15.3 | 59.6 | 20.5 | 2.2 | 1.1 |

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

## EXAMINERS' COMMENTS

In answering the June 1991 **Personal Response to Literature** assignment, students expressed appreciation of and admiration for Jack Stettler's courage and determination as described in the excerpt from "Dry Storm" by Paul St. Pierre. In their discussions, students explored such themes as "a person gains self-knowledge through facing challenges" and "the people who succeed can accept failure and start again." The improvement in planning in the students' writing was reflected in the improvement in the organization of their responses.

Many students achieving the acceptable standard attributed heroic terms, such as "exceptional bravery" and "superhuman perseverance," to Stettler. Students achieving the standard of excellence explored effective comparisons and contrasts of human behavior in emergency situations, such as patience versus panic and humor versus over-reaction. Few students wrote plot summaries; many wrote meaningfully and concisely about Stettler's dilemma. Many students used well-chosen literary support.

Most students produced satisfactory work on the June 1991 **Functional Writing** assignment, which required students to write a letter of application for a job. Most students achieved a polite tone; several used an assertive, confident tone. Many students included, as support, involvement in volunteer work; as well, they included pertinent informative details about their work experience. Fewer students than in the past simply reproduced the wording of the assignment. Students achieving the acceptable standard of performance included generalized information about their qualifications. Students achieving the standard of excellence provided precise, appropriate details pertaining to their work experience, and many achieved a sophisticated tone.

The photograph used in the **Response to Visual Communication** section depicts a Mexican family. The mother, who is nursing the youngest child, appears worried. Two older boys are playing violins. The room they are in is sparsely furnished and several musical instruments are visible. Students exhibited sensitivity in their responses. Many students discussed the photographer's choices in a more intelligent and articulate manner than students have in the past. For example, many students were aware of the juxtaposition of the young violinists' dedication and the poverty of their surroundings.

Students achieving the acceptable standard of performance tended to interpret the photograph in a conventional way, using generalized details for support. They often speculated about the mother's concerns and the father's absence. Some of the less successful students used the photograph as a springboard for their own imaginative narratives rather than analysing its message and visual impact.

Students achieving the standard of excellence presented an insightful interpretation of the photograph in an effective, generalized idea. They also explained how the details in the photograph and the photographer's choices reinforced this idea. These students frequently noted that music serves as a bulwark against despair and discussed the idea that personal wealth is not dependent on material possessions.

It is important to note that students must answer the **Response to Visual Communication** assignment with a sustained response. Very brief response will continue to be deemed insufficient.

# PART B: READING (MULTIPLE CHOICE)

## RESULTS

Results are in average raw scores.

Total Part B: 44.8 out of 69

Subtest Results:*

- Course Content
  - Main Ideas/Details: 21.3 out of 32
  - Relationship Between Form and Content: 10.5 out of 16
  - Human Experience and Values: 9.0 out of 15
  - Knowledge of Revision and Editing: 4.0 out of 6

* Readers are cautioned **not** to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

### EXAMINATION BLUEPRINT

Part B: Reading (Multiple Choice) has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area being tested and according to the thinking (process) skill demanded by the question. The examination blueprint illustrates the distribution of questions in June 1991 according to these classifications. One question was deleted after a review of question statistics.

| Question Type by Course Content | Question Type by Thinking Skills | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Literal Understanding | Inference and Application | Evaluation | |
| Main Ideas/ Details | 10, 18, 20, 39, 42 | 2, 4, 8, 9, 14, 17, 19, 21, 22, 24, 41, 44, 46, 48, 49, 53, 57, 59, 60, 63, 65, 69, 70 | 15, 16, 23, 31 | 32 items (23%) |
| Relationship Between Form and Content | | 12, 27, 43, 47, 51, 52, 55, 62, 64, 66, 68 | 11, 26, 28, 30, 58 | 16 items (11%) |
| Human Experience and Values | 29 | 1, 3, 5, 6, 7, 13, 25, 50, 56, 61, 67 | 40, 45, 54 | 15 items (11%) |
| Knowledge of Revision and Editing | 34, 36* | 37, 38 | 32, 33, 35 | 7 items (5%) |
| Examination Emphasis (%) | 8 items (6%) | 47 items (33%) | 15 items (11%) | 70 items (50%) |

*Note: Question 36 was deleted from the examination; see page 6 for a discussion of this question.

The following table shows question-by-question results and the keyed answers. A parallel table in the school and jurisdiction reports shows the percentage of students who selected each alternative. From this table, teachers can determine areas of strength and weakness in the achievement of their students relative to the province as a whole and, consequently, areas of strength and weakness in their own programs.

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 84.2 | 15 | D | 80.5 | 29 | B | 52.9 | 43 | B | 58.2 | 57 | B | 58.7 |
| 2 | D | 75.4 | 16 | A | 53.3 | 30 | A | 70.1 | 44 | D | 50.8 | 58 | C | 52.4 |
| 3 | B | 73.4 | 17 | B | 74.8 | 31 | D | 60.0 | 45 | C | 54.5 | 59 | D | 61.7 |
| 4 | A | 82.9 | 18 | C | 60.3 | 32 | D | 68.9 | 46 | B | 81.9 | 60 | B | 45.0 |
| 5 | B | 80.1 | 19 | A | 58.8 | 33 | C | 87.1 | 47 | A | 72.8 | 61 | D | 70.7 |
| 6 | C | 49.2 | 20 | B | 50.7 | 34 | A | 57.1 | 48 | A | 70.7 | 62 | A | 71.0 |
| 7 | D | 73.1 | 21 | B | 69.0 | 35 | C | 66.2 | 49 | D | 57.4 | 63 | C | 50.5 |
| 8 | C | 82.6 | 22 | C | 69.8 | 36 | – | – | 50 | A | 76.2 | 64 | A | 71.1 |
| 9 | C | 59.7 | 23 | C | 56.2 | 37 | B | 58.4 | 51 | D | 82.0 | 65 | A | 60.3 |
| 10 | B | 85.0 | 24 | C | 77.0 | 38 | B | 65.2 | 52 | A | 85.8 | 66 | A | 61.3 |
| 11 | C | 40.2 | 25 | D | 44.0 | 39 | A | 83.8 | 53 | B | 70.8 | 67 | C | 48.4 |
| 12 | D | 74.0 | 26 | C | 62.1 | 40 | D | 45.0 | 54 | C | 74.6 | 68 | B | 70.6 |
| 13 | B | 44.5 | 27 | A | 56.2 | 41 | D | 62.6 | 55 | B | 53.1 | 69 | D | 76.5 |
| 14 | A | 78.4 | 28 | C | 73.5 | 42 | A | 63.9 | 56 | D | 26.9 | 70 | B | 57.8 |

*Difficulty – percentage of students answering the question correctly

## EXAMINERS' COMMENTS

Ten English 33 teachers from across Alberta met during the July marking session to confirm the standards present in Part B: Reading (Multiple Choice) of the June 1991 English 33 Diploma Examination. They confirmed that the examination set an appropriate standard for graduating English 33 students. During this session, discussion about the examination focused on a number of questions, some of which are discussed below.

The following table gives results for three questions selected from the examination. For each question, three statistical references are given: the percentage of all students writing the examination who chose the correct answer, the percentage of students achieving the **standard of excellence** (80% or higher, or A, on the whole examination) who chose the correct answer, and the percentage of students achieving the **acceptable standard** (but not receiving marks higher than 64%, or C, on the whole examination) who chose the correct answer. The comments following the table discuss some of the decisions that students may have made and some of the skills that they may have used to answer correctly. Question 36, which was deleted from the examination, is also discussed.

### Percentage of Students Correctly Answering
### Selected Mutiple-Choice Questions

| Student Group | Question Number | | |
|---|---|---|---|
| | 25 | 55 | 56 |
| All students | 44.0 | 53.1 | 26.9 |
| Students achieving the **standard of excellence** (80% or higher, or A) on the whole examination | 78.9 | 84.2 | 47.8 |
| Students achieving the **acceptable standard** who received marks between 50% and 64%, or C, on the whole examination | 35.2 | 43.4 | 23.1 |

| Questions | Comments |
|---|---|
| **25.** In lines 9 to 12, the writer suggests that the attitude of North Americans toward blood sports is<br>**A.** admiring<br>**B.** sympathetic<br>**C.** exaggerated<br>***D.** hypocritical | In discussing **question 25**, some teachers felt that the term "hypocritical" would be outside the vocabulary of many English 33 students. They felt that unless students took the time to check back to lines 9 to 12, most would choose alternative A as the best answer.<br>The question was, in fact, difficult: 44.0% of all students responded correctly (25.4% chose A). However, students who achieved the standard of excellence did quite well on this question: 78.9% answered correctly (12.0% chose A). Students who achieved marks between 50% and 64% did less well: 35.2% answered correctly (29.0% chose A). Of those students who failed the examination (a score of 49% or less), 25.5% responded correctly and 26.5% chose A. |

## EXAMINERS' COMMENTS (continued)

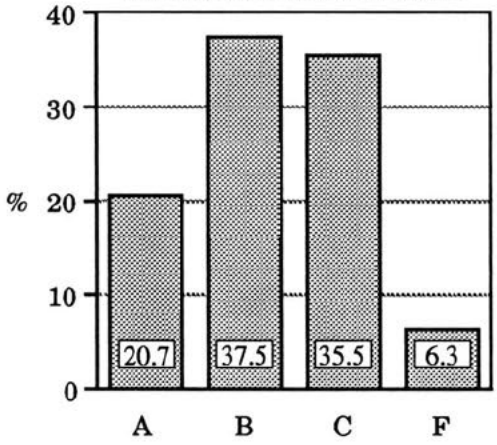
| Questions | Comments |
|---|---|
| **36.** In revising the second sentence of the fourth paragraph, Robin makes effective use of<br>**A.** emphasis<br>**B.** coherence<br>**C.** inference<br>**D.** parallelism | **Question 36** was deleted from the examination. Teachers believed that this question was too difficult, or too complicated, for English 33 students to manage, and statistical analysis confirmed this. The question appears to have created a confusion of cause and effect in the minds of students. While it is true that Robin makes effective use of **parallelism** in her revision, this use of parallelism helps to create **emphasis**. Since there were two potential answers to this question, it was dropped from the examination. |
| **55.** At the beginning and the end of the story, the writer emphasizes the difference between Mr. Welles' memory of his past life and the reality of his present life by contrasting the images of<br>**A.** country and city<br>***B.** evening and morning<br>**C.** the lake and the delicatessen<br>**D.** the theatre and the restaurant | Some teachers felt that **question 55** was too complicated for English 33 students and that it would be very difficult. They felt that students were being asked to mentally juggle too many elements from the story.<br>The question was relatively difficult, with 53.1% of all students answering correctly. However, 84.2% of students achieving the standard of excellence were well able to use their thinking skills to process the various elements (the story's beginning and end, the difference between memory and reality, and the difference between images of evening and morning) and to arrive at the correct answer. Of the students achieving marks between 50% and 64%, 43.4% answered correctly. |
| **56.** The parenthetical statements "(looking like a little girl, so gay)" (lines 8-9) and "(as if she'd just learned how to walk, each step conscious, an accomplishment)" (lines 13-15) indicate a tone of<br>**A.** pity for the pigeon woman's delusions of youth<br>**B.** ridicule of the pigeon woman's foolishness<br>**C.** criticism of the pigeon woman's actions<br>***D.** empathy with the pigeon woman's purpose | Students found **question 56** very difficult. Only 26.9% answered correctly and 48.8% were drawn to alternative A. The speaker's tone in the poem, however, is one of **empathy**, which is a positive and understanding feeling, rather than **pity**, which is often negative and judgmental. Nothing in the pigeon woman's behavior suggests that she has "delusions of youth"; the speaker's comparison of the pigeon woman with "a little girl" exists outside of the mind of the pigeon woman.<br>Of the students achieving the standard of excellence on the examination, 47.8% chose the correct answer, and 44.9% chose alternative A. Of the students achieving marks between 50% and 64%, 23.1% answered correctly and 49.0% chose alternative A. Of the students failing the examination (a mark of 49% or less), 13.2% answered correctly and 39.1% chose alternative A. |

Students who achieved the standard of excellence on the examination as a whole demonstrated that they consistently read the selections and all parts of each question carefully and thoughtfully. Results indicate that students who verify their answers by reading the text carefully are usually successful.

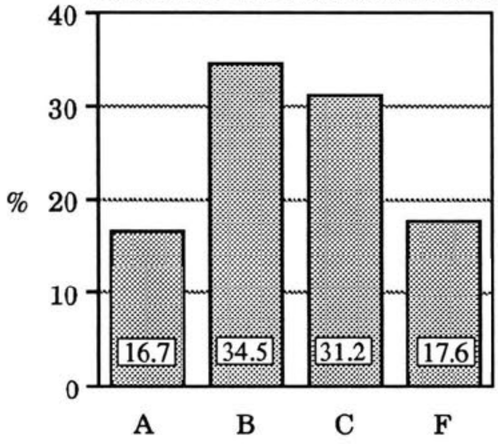
For further information, contact Gloria Malick, Tom Dunn, or Elana Scraba at the Student Evaluation Branch, 427-2948.

# Social Studies 30 Diploma Examination Results
# Examiners' Report, June 1991

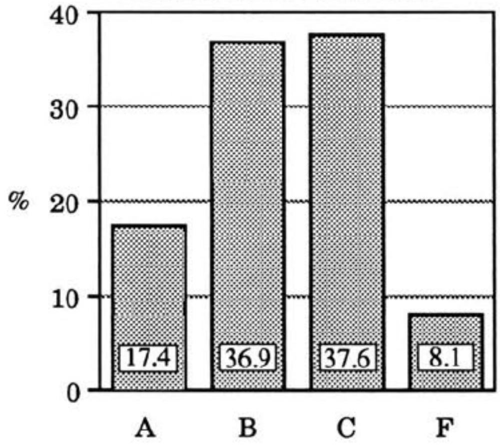
SCHOOL-AWARDED MARK



DIPLOMA EXAMINATION MARK



FINAL BLENDED MARK



The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the Social Studies 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

## DESCRIPTION OF THE EXAMINATION

The Social Studies 30 Diploma Examination consists of two parts: a multiple-choice section worth 70% and a written-response section worth 30% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 11 874 students who wrote the June 1991 examination.

- 91.9% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 17.4% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

Overall, student achievement in Social Studies 30 was satisfactory. Students demonstrated a good grasp of social studies knowledge. They continued to improve in their writing, which required the integration of concepts and their application to social studies issues.

## PROVINCIAL AVERAGES

- The average school-awarded mark was 67.4%.
- The average diploma examination mark was 64.3%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 66.1%.

# PART A: MULTIPLE CHOICE

## EXAMINATION BLUEPRINT

Part A: Multiple Choice has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the curricular content area (topic) being tested and according to the knowledge and skill objectives called forth by the question. The examination blueprint illustrates the distribution of questions in June 1991 according to these classifications.

All questions on the diploma examination require students to demonstrate knowledge of social studies content and to apply social studies skills to that knowledge base. The reporting categories below define the general types of questions that appear on the examination and the categories for which information is reported.

| | | QUESTION CLASSIFICATION BY TOPIC | | TOTAL QUESTIONS |
|---|---|---|---|---|
| | | **TOPIC A: POLITICAL AND ECONOMIC SYSTEMS** | **TOPIC B: GLOBAL INTERACTION IN THE 20TH CENTURY** | |
| | | Knowledge and application of facts, concepts, and generalizations related to the world's political and economic systems as outlined in the *Program of Studies.* | Knowledge and application of facts, concepts, and generalizations related to the interaction among nations since 1918 as outlined in the *Program of Studies.* | |
| QUESTION CLASSIFICATION BY KNOWLEDGE AND SKILL OBJECTIVES | **COMPREHENSION OF INFORMATION AND IDEAS** These questions require students to demonstrate their knowledge and understanding of generalizations, key concepts, related facts, and social studies content. | 1, 2, 5, 10, 14, 15, 16, 26, 28, 29, 30, 35 | 41, 43, 45, 46, 53, 58, 59, 62, 63, 67, 68, 69 | 24 |
| | **INTERPRETATION AND ANALYSIS OF INFORMATION AND IDEAS** These questions require students to demonstrate and apply their knowledge of social studies content by interpreting and analysing information and ideas. | 3, 7, 9, 11, 19, 20, 22, 23, 25, 27, 31, 32 | 36, 39, 42, 47, 48, 50, 52, 55, 60, 64, 66 | 23 |
| | **SYNTHESIS AND EVALUATION OF INFORMATION AND IDEAS** These questions require students to demonstrate and apply their knowledge of social studies content by synthesizing information and ideas and evaluating their accuracy and worth. | 4, 6, 8, 12, 13, 17, 18, 21, 24, 33, 34 | 37, 38, 40, 44, 49, 51, 54, 56, 57, 61, 65, 70 | 23 |
| | TOTAL QUESTIONS | 35 | 35 | 70 |

## RESULTS

Results are reported in average raw scores. Total Part A: 47.4 out of 70. Subtest results for Part A:*

- by Topic
  - Political and Economic Systems: 23.1 out of 35
  - Global Interaction in the 20th Century: 24.2 out of 35

- by Knowledge and Skill Objectives
  - Comprehension of Information and Ideas: 16.1 out of 24
  - Interpretation and Analysis of Information and Ideas: 15.7 out of 23
  - Synthesis and Evaluation of Information and Ideas: 15.6 out of 23

* Readers are cautioned **not** to compare subtest results because the subtests are not of equal difficulty. Readers should compare these provincial subtest results with their own school results.

The following table shows question-by-question results and the keyed answers. There is a parallel table in the school and jurisdiction reports. Comparison of school results with provincial results may show areas of strength and weakness in instructional programs.

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | C | 63.1 | 15 | A | 65.4 | 29 | A | 53.0 | 43 | D | 72.2 | 57 | C | 64.4 |
| 2 | D | 55.1 | 16 | B | 76.7 | 30 | C | 80.7 | 44 | C | 68.4 | 58 | B | 72.0 |
| 3 | B | 88.2 | 17 | C | 75.7 | 31 | A | 52.9 | 45 | C | 55.6 | 59 | C | 83.3 |
| 4 | A | 72.0 | 18 | A | 43.4 | 32 | D | 73.1 | 46 | A | 63.9 | 60 | D | 71.7 |
| 5 | C | 55.2 | 19 | D | 84.9 | 33 | D | 78.4 | 47 | C | 57.4 | 61 | B | 59.8 |
| 6 | B | 83.3 | 20 | A | 83.5 | 34 | B | 58.7 | 48 | C | 68.8 | 62 | B | 71.9 |
| 7 | D | 39.0 | 21 | B | 75.4 | 35 | D | 49.0 | 49 | B | 68.8 | 63 | C | 70.2 |
| 8 | A | 67.3 | 22 | D | 77.2 | 36 | A | 79.2 | 50 | A | 72.6 | 64 | C | 69.1 |
| 9 | C | 70.7 | 23 | B | 38.9 | 37 | B | 82.4 | 51 | C | 71.4 | 65 | D | 78.8 |
| 10 | B | 55.8 | 24 | C | 69.1 | 38 | C | 50.9 | 52 | A | 78.6 | 66 | C | 66.5 |
| 11 | B | 66.0 | 25 | C | 63.9 | 39 | B | 41.2 | 53 | B | 56.5 | 67 | A | 72.7 |
| 12 | D | 58.2 | 26 | B | 66.5 | 40 | A | 47.7 | 54 | D | 82.9 | 68 | C | 66.6 |
| 13 | D | 65.1 | 27 | C | 77.9 | 41 | D | 82.3 | 55 | D | 81.7 | 69 | B | 88.5 |
| 14 | A | 73.2 | 28 | B | 57.0 | 42 | D | 69.8 | 56 | A | 79.2 | 70 | C | 56.7 |

*Difficulty – percentage of students answering the question correctly

## EXAMINERS' COMMENTS

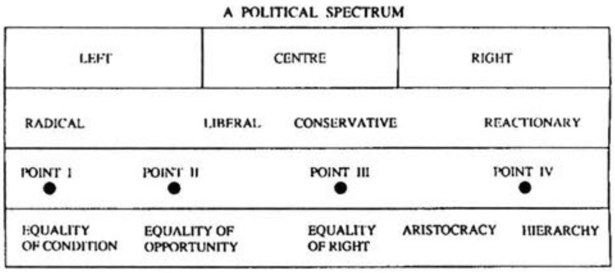
The multiple-choice section of the examination requires students to go beyond simply recalling information and to apply their knowledge and thinking skills. Students must demonstrate that they understand social studies concepts; that they comprehend historical, political, and economic relationships; and that they can interpret and evaluate social studies information and ideas.

The following table gives results for five questions selected from the examination. For each question, three statistical references are given: the percentage of students writing the examination who chose the correct answer, the percentage of students achieving the **standard of excellence** (80% or higher, or A, on the whole examination) who chose the correct answer, and the percentage of students achieving the **acceptable standard** (but not receiving marks higher than 64%, or C, on the whole examination) who chose the correct answer. The comments on pages 4 and 5 discuss some of the decisions that students may have made and some of the skills they may have used to answer correctly.

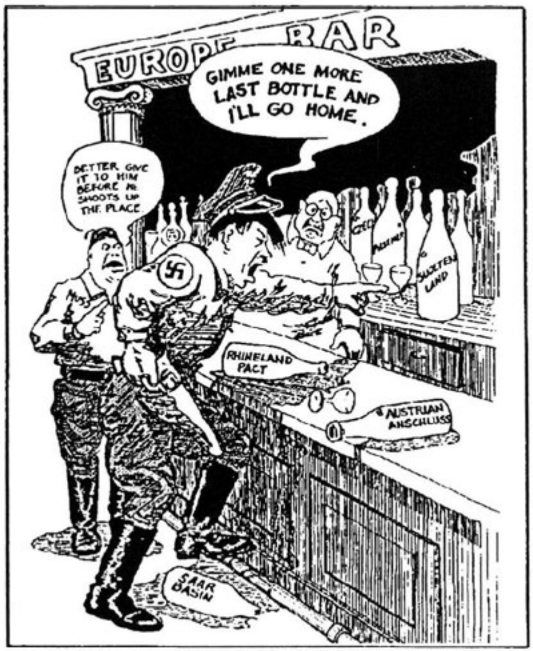
### Percentage of Students Correctly Answering Selected Multiple-Choice Questions

| Student Group | Question Number | | | | |
|---|---|---|---|---|---|
| | 11 | 12 | 13 | 42 | 70 |
| All students | 66.0 | 58.2 | 65.1 | 69.8 | 56.7 |
| Students achieving the **standard of excellence** ( 80% or higher, or A) on the whole examination | 92.4 | 80.1 | 87.4 | 97.0 | 71.3 |
| Students achieving the **acceptable standard** who received marks between 50% and 64%, or C, on the whole examination | 56.2 | 50.2 | 56.0 | 60.3 | 52.4 |

## EXAMINERS' COMMENTS (continued)

| Questions | Comments |
|---|---|
|  A POLITICAL SPECTRUM<br>LEFT<br>CENTRE<br>RIGHT<br>RADICAL<br>LIBERAL<br>CONSERVATIVE<br>REACTIONARY<br>POINT I<br>POINT II<br>POINT III<br>POINT IV<br>EQUALITY OF CONDITION<br>EQUALITY OF OPPORTUNITY<br>EQUALITY OF RIGHT<br>ARISTOCRACY<br>HIERARCHY | For questions 11, 12, and 13, students were given a diagram of different political philosophies. They had to decide where particular points of view would fit on this spectrum of political perspectives. Students needed to interpret, to analyse, and to evaluate ideas in order to determine the best answers. |
| **11.** Which ideology would be **best** represented at Point I on this spectrum?<br>**A.** Fascism<br>*** B.** Communism<br>**C.** Social democracy<br>**D.** Classical liberalism | **Question 11** asked students to match a specific political philosophy with its location on the spectrum. To be able to do this, students had to recognize the beliefs associated with each philosophy, and many did. In fact, 92% of the students who achieved the standard of excellence on the whole examination identified the correct ideology, as did 56% of the students whose total examination scores were between 50% and 64%. |
| **12.** The following argument<br>*The leader is the bearer of the collective will of the people. Thus it is possible for him, in the name of the true will of the people that he serves, to go against the opinions and convictions of single individuals if these are not in accord with the destiny of the people. Through his direction, he gives the nation its true purpose.*<br>would be **most** closely associated with a speaker located at what point on the spectrum?<br>**A.** POINT I<br>**B.** POINT II<br>**C.** POINT III<br>***D.** POINT IV | **Question 12** was about the role of leadership and its influence on a nation's goals. Students had to interpret the meaning of a given statement and then relate it to the appropriate point on the spectrum. Of the students achieving the standard of excellence, 80% were able to correctly relate the statement's ideological implications to a point on the spectrum, and only 50% of the students achieving total examination scores between 50% and 64% were able to do so. Many students (42%) did not seem to understand the statement or its relationship to the spectrum. |
| **13.** The following issue is being debated in a social studies classroom:<br>*Should governments emphasize individual initiative in their nations' economies?*<br>If Point II on the spectrum represented your beliefs, which of the following claims would **best** express your views on this issue?<br>**A.** A public enterprise economy will end exploitation by abolishing all private property.<br>**B.** A market-oriented economy is best suited to enhance risk taking and profit making.<br>**C.** Mixed economies encourage far too much abuse of state welfare and support systems.<br>***D.** Mixed economies provide for the best combination of self-reliance and economic equality. | **Question 13** asked students to make a connection between a point on the spectrum and a generalization about a broad, societal issue. This question set a complex task for students. They had to understand both the economic aspects of the issue and the philosophical aspects of a certain point on the spectrum. They then had to sort through four generalizations and choose the one that best represented an appropriate response according to the specific point on the spectrum. Of the students who achieved the standard of excellence, 87% chose the correct answer, and 56% of those who achieved total examination scores between 50% and 64% answered correctly. That 65% of all students correctly answered this question speaks well for their ability to analyse and evaluate complex ideas. |

## EXAMINERS' COMMENTS (continued)

| Questions | Comments |
|---|---|
| TOUGH CUSTOMER DRUNK WITH POWER<br><br> EUROPE BAR<br>GIMME ONE MORE LAST BOTTLE AND I'LL GO HOME.<br>BETTER GIVE IT TO HIM BEFORE HE SHOOTS UP THE PLACE<br>SUDETEN LAND<br>RHINELAND PACT<br>AUSTRIAN ANSCHLUSS<br>SAAR BASIN<br>KNOTT, *THE DALLAS NEWS*<br>**42.** This 1938 cartoon is ridiculing the<br>**A.** German policy of alliances<br>**B.** Czech policy of independence<br>**C.** Italian policy of containment<br>***D.** British policy of appeasement | **Question 42** was based on an historical cartoon from the inter-war years. Students needed to use critical thinking skills such as interpretation and synthesis as well as recall of pertinent historical information to determine the message portrayed in the cartoon. This involved identifying key historical figures and recognizing their relationship to significant historical events from clues clearly revealed in the sketch. Many students correctly identified the cartoon's intent. In fact, 97% of the students who achieved the standard of excellence answered correctly, as did 60% of the students whose total examination scores were between 50% and 64%. |
| **70.** Consider the issue stated below and **evaluate** the arguments that follow by choosing the STRONGEST argument that relates to the issue.<br>SHOULD GOVERNMENTS RESOLVE THEIR DISPUTES THROUGH THE UNITED NATIONS?<br>A. No, because the United Nations has not experienced any success in preventing wars or local conflicts.<br>B. Yes, because the United Nations has been instrumental in forcing the superpowers to recognize the need for disarmament.<br>*C. No, because the use of the Security Council veto by some permanent members has blocked crucial international action.<br>D. Yes, because the loss of sovereignty is inconsequential in today's world. | **Question 70** tested students' ability to distinguish weak arguments from strong arguments – in this instance, primarily on the basis of an argument's accuracy. Students were required to evaluate the strength of four claims made in support of, or in opposition to, an important 20th-century issue; three of the four claims were essentially inaccurate. Students found this a somewhat difficult question, with 43% of the student population choosing incorrect responses. However, 71% of the students achieving the standard of excellence answered correctly. |

## PART B: WRITTEN RESPONSE

The results for the written-response section of the Social Studies 30 Diploma Examination are on page 6. The results are tabulated according to the percentage of students achieving at each level (1 to 5) in each of the scoring categories. Each scoring category assesses somewhat different skills; consequently, individual student's scores are likely to vary from one category to another. Those students who achieve at or above the standard of excellence (80%) on the written-response section have scores of (4) PROFICIENT or (5) EXCELLENT on all scoring categories. Students just meeting the acceptable standard (50%) on the written-response section have scores of (3) SATISFACTORY on some scoring categories but produce (2) LIMITED work on other categories. Students who produce (3) SATISFACTORY work on **all** scoring categories receive scores of 18 out of 30 on Part B.

Readers will find the results most meaningful in the context of the assignment and the scoring descriptors. The most useful starting place for reviewing these results is at the (3) SATISFACTORY level. The scoring guides that describe proficiency levels are in the *Diploma Examinations Program Bulletin, Social Studies 30, 1991-92 School Year*.

## PART B: WRITTEN RESPONSE
## EXAMINATION BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

The written-response section contributes 30% of the examination mark. Students are required to write one complete and unified essay in which they define the scope of an issue and rationally defend a position through the application of supportive evidence with respect to the issue. The organization of arguments should show evidence of logical thought that is persuasive for the reader. Students are expected to make use of critical and creative thinking skills to demonstrate complex and independent thought.

Part B: Written Response has a total value of 30 marks: 10 marks each for Defence of Position and Presentation of Examples or Case Studies, and five marks each for Definition of the Issue and Quality of Language and Expression.

| SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|
| | | (5) EXCELLENT | (4) PROFICIENT | (3) SATISFACTORY | (2) LIMITED | (1) POOR | (0) INS |
| 1. Definition of the Issue | 5 | 1.8 | 14.4 | 40.7 | 36.4 | 6.5 | 0.3 |
| 2. Defence of Position | 10 | 2.4 | 17.4 | 45.4 | 31.6 | 3.0 | 0.3 |
| 3. Presentation of Examples or Case Studies | 10 | 2.5 | 15.0 | 40.1 | 34.7 | 7.4 | 0.3 |
| 4. Quality of Language and Expression | 5 | 2.5 | 21.1 | 60.0 | 15.2 | 0.9 | 0.3 |

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

### EXAMINERS' COMMENTS

The results of the written component of the June examination continued to show an increase in the average score achieved provincially compared with administrations before 1991. June 1991 was the second time that students' writing was evaluated using scoring descriptors considerably revised from previous administrations. Generally, these changes have allowed students more latitude to use their own organization when expressing their ideas, and to write in a less mechanical, restricted manner.

While many students were able to express a clear understanding of the dimensions of an issue and to identify underlying assumptions with little difficulty, some students continued to assign a simplistic, two-valued approach to the task in the assignment. It was as if an issue essentially boiled down to a conflict between two basic principles, such as interventionism and individualism, whether or not these principles were appropriate to the issue under discussion.

Many markers, including those teachers who served to confirm standards, felt that students are more aware of how better to develop an argumentative paper. Writing was generally more focused on task and structurally integrated. That is to say, growing numbers of students were able to establish a basis for each of their arguments and successfully link them to their position. Often such students, rather than viewing the issue and their position in absolute, unequivocal terms, demonstrated a more subtle conceptual grasp of applying historical and contemporary information. The issue became an opportunity to define a qualified position; for instance, that nations should unite militarily against potential aggressors under certain circumstances but use alternative methods at other times. Such writers were less inclined to accept popular perceptions of reality as unshakably given. Other students, however, persisted in developing, often at tedious length, narrative descriptions of detail only vaguely or marginally relevant to their position or, indeed, to the issue. Writing that presented a superficial, nonanalytical approach received lower scores.

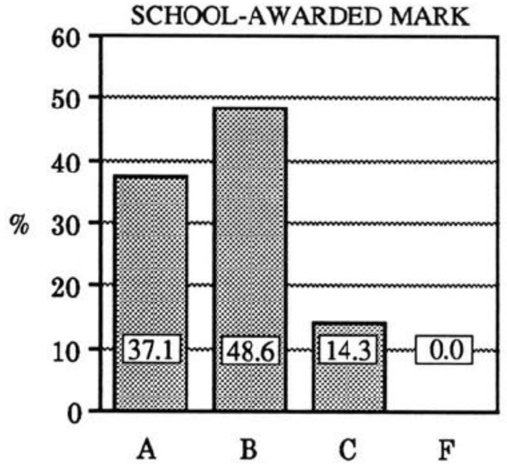
It was encouraging to see, as in January, many students select their evidence from appropriate social studies content and relevant current events in their presentation of examples or case studies. Numbers of students quite effectively developed their supportive evidence from a theoretical or metaphorical perspective as well.

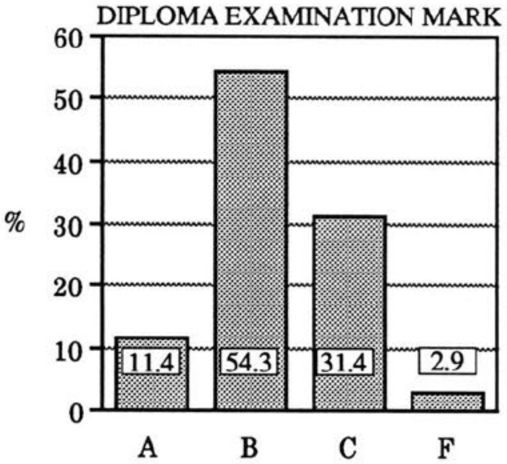
Many students choosing to write on Topic A purposefully developed their evidence from a Soviet, American, Canadian, or Swedish example or case study. Often, these same writers adroitly integrated information provided by the multiple-choice section of the examination into their discussion. Too many students, however, attempted to create arguments based on general assertions or hypothetical situations alone rather than integrate specific or actual examples. They essentially struggled, often valiantly, to fit conventional, even formulaic, knowledge around the import of an issue that largely eluded them. Financial incentives to private industry, for example, would somehow be strangely explained within the context of the theoretical underpinnings of a Marxist model. It was also noted by many markers that some writers developing evidence from the Swedish or Soviet example utilized quite incorrect information. This may indicate a problem with dated resources.

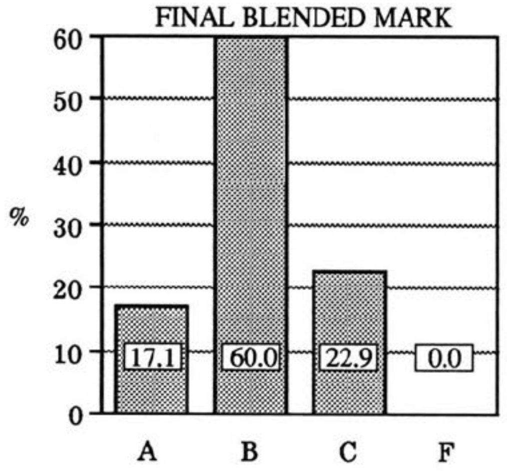
Topic B papers included many of the more insightful and perceptive papers. It is possible that recent events, including the Gulf War, created a climate that engaged many student writers who then viewed the issue under discussion as meaningful and relevant and who reflected more thoughtfully on the assignment and on their own ideas.

For further information, contact Barry Jonas, Tom Dunn, or Elana Scraba at the Student Evaluation Branch, 427-2948.

# Français 30 Diploma Examination Results
# Examiners' Report, June 1991


SCHOOL-AWARDED MARK


DIPLOMA EXAMINATION MARK


FINAL BLENDED MARK

The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the Français 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

## DESCRIPTION OF THE EXAMINATION

The Français 30 Diploma Examination consists of two parts: a written-response section and a multiple-choice section. Each part is worth 50% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 35 students who wrote the June 1991 examination.

- 100.0% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 17.1% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

Student achievement in Français 30 was acceptable. All students met course standards.

## PROVINCIAL AVERAGES

- The average school-awarded mark was 74.2%.
- The average diploma examination mark was 66.2%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 70.5%.

# PART A: WRITTEN RESPONSE

Part A: Written Response is written at a different time from Part B: Reading. The written-response section requires students to respond to two separate assignments related to the same piece of literature. Both assignments assess a variety of writing and thinking skills. The first assignment requires students to write a personal response to the literature. The second requires them to discuss literature read in class that relates to the given theme. A description of each assignment is provided in the blueprint below.

The results for Part A: Written Response are most clearly understood in the context of the assignments and the scoring descriptors, and are best interpreted by considering the percentage of students achieving at (3) SATISFACTORY or higher. Satisfactory work that meets the standards expected is described in the scoring guide, which is available in the *Bulletin de Français 30, Programme des examens en vue du diplôme, Année scolaire 1991-92.* **Readers should be cautious about drawing conclusions based on these results since the number of students writing was only 35.** However, results should help teachers and administrators in considering areas of strength and weakness in their own programs.

## EXAMINATION BLUEPRINT and PERCENTAGE DISTRIBUTION OF RESULTS

| DESCRIPTION OF THE WRITING ASSIGNMENT | SCORING CATEGORY | PROPORTION OF TOTAL MARK (%) | PERCENTAGE DISTRIBUTION OF SCORES | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) EXCELLENT | (4) PROFICIENT | (3) SATISFACTORY | (2) LIMITED | (1) POOR | (0) INS |
| **Premier sujet**<br>Students are required, by calling upon their personal experiences or other sources, to present an opinion, express a reaction, or discuss pertinent information related to a reading selection presented in the examination. Students are also required to adapt their use of language and details in such a way as to communicate effectively the message they wish to convey to their chosen public. | 1. Treatment of the Subject: Choice and Expression | 12.5 | 2.9 | 54.3 | 37.1 | 2.9 | 2.9 | 0.0 |
| | 2. Style and Knowledge of the Language | 7.5 | 14.3 | 42.9 | 40.0 | 2.9 | 0.0 | 0.0 |
| **Deuxième sujet**<br>The "deuxième sujet" gives students a specific topic related to the reading selection in the examination. The topic requires students to discuss literature studied in their French courses, while leaving them the choice of method and style of presentation, as well as choice of details (examples and illustrations). Students are expected to express themselves clearly and correctly, keeping in mind their chosen public. | 1. General Impression | 5.0 | 8.6 | 51.4 | 37.1 | 2.9 | 0.0 | 0.0 |
| | 2. Treatment of the Subject: Choice and Expression | 7.5 | 5.7 | 42.9 | 45.7 | 2.9 | 2.9 | 0.0 |
| | 3. Organization | 7.5 | 11.4 | 65.7 | 20.0 | 0.0 | 2.9 | 0.0 |
| | 4. Style | 5.0 | 20.0 | 34.3 | 42.9 | 2.9 | 0.0 | 0.0 |
| | 5. Knowledge of the Language | 5.0 | 22.9 | 31.4 | 40.0 | 5.7 | 0.0 | 0.0 |

Note: The shaded portion represents the percentage of students who achieved or exceeded a SATISFACTORY level of performance.

## EXAMINERS' COMMENTS

Students were asked to read an anecdote in which the author, André Gide, recalls a childhood incident during which he faced a challenge, succeeded in meeting it, and instead of seeking compliments for his feat, decided to keep silent and thereby renounce all chance of praise.

In the first assignment, **Premier sujet**, students were asked to express their opinion on the merits or risks of seeking compliments. Teachers reported that students understood and liked the topic as it gave them good scope for expressing themselves. Some students defended the need for compliments on the grounds that praise provides encouragement. Others took the opposite viewpoint, that seeking glory for itself is not necessarily good. A few gave specific examples of people whom they admire because these people do not expect compliments for what they do. Supporting details for their discussion were appropriate and well thought-out. The compositions were at times quite touching.

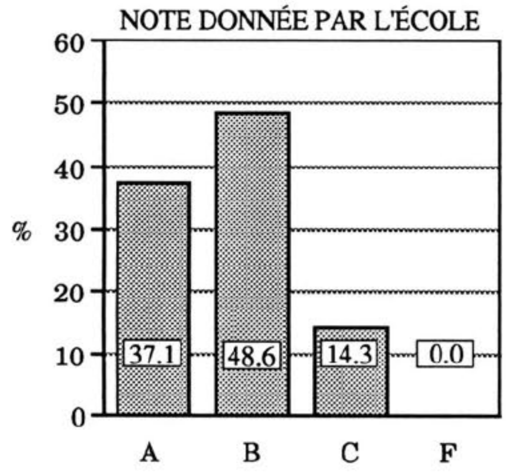
For the **Deuxième sujet**, students were expected to refer to literature they had studied in which a character or characters had faced a challenge. Students were to tell how the character or characters met the challenge and were affected by it. Students had no difficulty selecting literature to discuss or defining the challenge. Although the topic lent itself in some measure to plot summary in order to show how the challenge arose, most students were able to make the main thrust of their work the significance of the challenge and its effects.

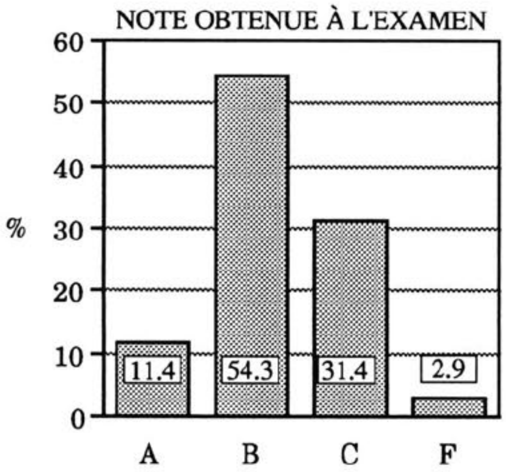
For "Treatment of the Subject: Choice and Expression," 5.7% of all students received a score of (5) EXCELLENT, 42.9% received a score of (4) PROFICIENT, and 45.7% received a score of (3) SATISFACTORY. Only 2.9% (1 student) received a score of (2) LIMITED, and only 2.9% (1 student) received a score of (1) POOR. These scores are best understood in the context of the assignments and the descriptors in the scoring guides. A copy of the scoring guides appears in the *Bulletin de Français 30, Programme des examens en vue du diplôme, Année scolaire 1991-92.*

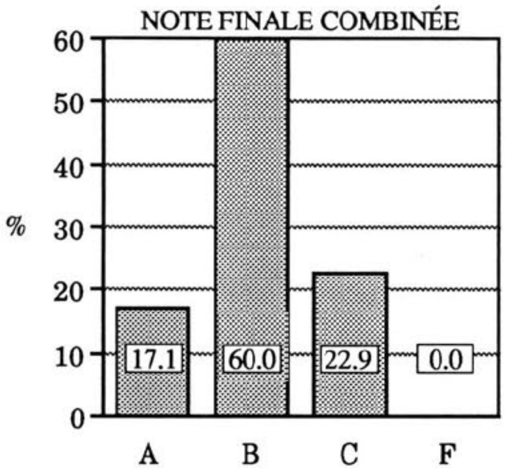
Students used language clearly and correctly, with only 5.7% (2 students) receiving a score below (3) SATISFACTORY in the "Knowledge of the Language" category. Good organisation and style were also evident, as shown by the Percentage Distribution of Scores, page 2.

Note: A report on Part B: Reading is not included in this June 1991 *Examiners' Report* because Part B of this administration is secured. Some items from this part of the June 1991 examination may be reused on future examinations.

# Résultats de l'examen de Français 30 en vue du diplôme
# Rapport des examinateurs, Juin 1991







Les renseignements sommaires donnés dans le présent rapport fournissent aux enseignants, aux administrateurs scolaires, aux élèves et au public une vue d'ensemble des résultats de l'examen de Français 30 en vue du diplôme administré en juin 1991. Ces renseignements sont le plus utiles quand utilisés à côté des rapports détaillés par école et par juridiction qui ont été envoyés aux écoles et aux bureaux des juridictions scolaires. Un rapport provincial annuel contenant une analyse détaillée des résultats combinés de janvier, juin et août sera disponible vers la fin de 1991.

## DESCRIPTION DE L'EXAMEN

L'examen de Français 30 en vue du diplôme comporte deux parties: la production écrite et la compréhension écrite. Chaque partie vaut 50% de la note totale d'examen.

## NIVEAU ATTEINT

Les renseignements donnés ici sont basés sur les notes finales combinées obtenues par les 35 élèves qui ont passé l'examen en vue du diplôme en juin 1991.

- 100.0% de ces élèves ont atteint le niveau acceptable (une note finale combinée de 50% ou plus).
- 17.1% de ces élèves ont atteint le niveau excellent (une note finale combinée de 80% ou plus).

Le rendement des élèves en Français 30 était acceptable. Tous les élèves ont atteint les normes établies pour le cours.

## MOYENNE PROVINCIALE

- La note moyenne donnée par l'école était 74,2%.
- La note moyenne obtenue à l'examen était 66,2%.
- La note moyenne finale combinée, représentant un pourcentage égal de la note de l'examen en vue du diplôme et de celle de l'école, était 70,5%.

## PARTIE A: PRODUCTION ÉCRITE

Partie A: Production écrite et Partie B: Compréhension écrite sont administrées à des moments différents. Dans la partie production écrite de l'examen, il est demandé aux élèves d'écrire sur deux sujets séparés, portant tous les deux sur un même passage littéraire. Les deux compositions mesurent une variété d'aptitudes d'écrire et de penser. Dans le premier sujet, il est demandé aux élèves de rédiger une réponse personnelle au passage littéraire. Dans l'autre sujet, il leur est demandé de discuter des oeuvres littéraires lues en classe qui se rapportent au thème donné. Une description de chaque exercice est donnée dans le plan d'ensemble ci-dessous.

Les résultats de la Partie A: Production écrite se comprennent le mieux dans le contexte des exercices et des descripteurs utilisés pour les noter, et s'interprètent le mieux en considérant le pourcentage d'élèves ayant atteint le niveau (3) SATISFAISANT ou mieux que satisfaisant. Un travail qui répond aux normes proposées est décrit dans le guide de notation qui se trouve dans le *Bulletin de Français 30, Programme des examens en vue du diplôme, Année scolaire 1991-92.* **Le lecteur devrait se garder de tirer des conclusions basées sur ces résultats puisqu'il n'y a que 35 élèves qui ont écrit cet examen.** Les résultats devraient toutefois être utiles pour les enseignants et les administrateurs pour considérer les domaines de force et de faiblesse dans leurs propres programmes.

## PLAN D'ENSEMBLE et RÉPARTITION DES RÉSULTATS EN POURCENTAGE

| DESCRIPTION DES EXERCICES | CATÉGORIE DE NOTATION | POURCENTAGE DE LA NOTE TOTALE (%) | RÉPARTITION DES POINTS EN POURCENTAGE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | (5) SUPÉRIEUR | (4) COMPÉTENT | (3) SATISFAISANT | (2) LIMITÉ | (1) PAUVRE | (0) INS |
| **Premier sujet**<br>Le premier sujet présente aux élèves une situation ou un contexte (qui pourrait se rapporter à un texte) à partir duquel on leur demandera, en faisant appel à leurs expériences personelles, ou à tout autre renseignement, d'exprimer une opinion, d'exposer une réaction ou de présenter des renseignements pertinents. Les élèves devraient adapter la langue et les détails pour communiquer de façon efficace leur message à leur public cible selon le but choisi. | 1. Traitement du sujet: Choix et formulation des idées | 12,5 | 2,9 | 54,3 | 37,1 | 2,9 | 2,9 | 0,0 |
| | 2. Style et connaissance de la langue | 7,5 | 14,3 | 42,9 | 40,0 | 2,9 | 0,0 | 0,0 |
| **Deuxième sujet**<br>Le deuxième sujet fixe une tâche précise mais laisse aux élèves le choix de la structure et du style, ainsi que le choix des détails pertinents (exemples, illustrations) qui doivent être tirés des oeuvres étudiées dans leurs cours de français. Le sujet à traiter se rapportera à un texte présenté à l'examen. Les élèves devront établir des liens entre les textes étudiés et s'exprimer clairement par écrit en tenant compte de leur public cible. | 1. Impression générale | 5,0 | 8,6 | 51,4 | 37,1 | 2,9 | 0,0 | 0,0 |
| | 2. Traitement du sujet: Choix et formulation des idées | 7,5 | 5,7 | 42,9 | 45,7 | 2,9 | 2,9 | 0,0 |
| | 3. Organisation | 7,5 | 11,4 | 65,7 | 20,0 | 0,0 | 2,9 | 0,0 |
| | 4. Style | 5,0 | 20,0 | 34,3 | 42,9 | 2,9 | 0,0 | 0,0 |
| | 5. Connaissance de la langue | 5,0 | 22,9 | 31,4 | 40,0 | 5,7 | 0,0 | 0,0 |

Note: La partie hachurée représente le pourcentage d'élèves qui ont atteint le niveau SATISFAISANT ou mieux que satisfaisant.

## COMMENTAIRES DES EXAMINATEURS

On demandait aux élèves de lire une anecdote dans laquelle l'auteur, André Gide, relate un incident de son enfance qui le montre devant un défi qu'il réussit à relever et, au lieu de parler de son exploit pour se faire valoir, il décide de se taire et de renoncer ainsi à recevoir des compliments.

Dans le premier exercice, **Premier sujet**, on demandait aux élèves d'exprimer leur opinion sur les mérites ou les risques de rechercher des compliments. Les enseignants ont noté que les élèves ont compris et aimé le sujet parce qu'il leur donnait toute latitude de s'exprimer. Il y a des élèves qui ont défendu le besoin de compliments parce que la louange est nécessaire pour encourager. D'autres ont pris le point de vue opposé et ont dit qu'il n'était pas nécessairement bon de rechercher la gloire en soi. Quelques-uns ont donné des exemples précis de personnes qu'ils admirent parce qu'elles ne s'attendent pas à recevoir des compliments pour ce qu'elles font. Les détails à l'appui de leur discussion étaient appropriés et réfléchis. Les compositions étaient parfois très touchantes.

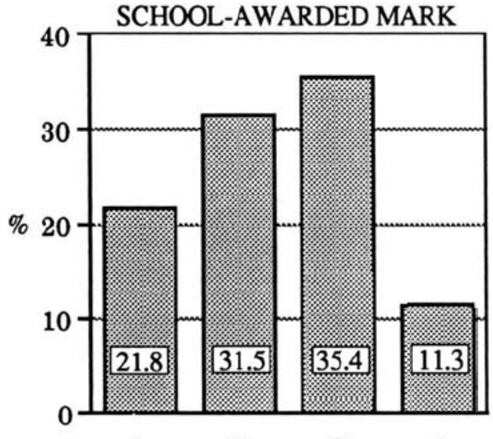
Pour le **Deuxième sujet**, les élèves étaient censés se reporter à des oeuvres littéraires qu'il avaient étudiées et dans lesquelles un ou plusieurs personnages s'étaient trouvés devant un défi. Ils devaient dire comment le personnage ou les personnages avaient relevé le défi et l'effet que cela avait eu sur leur vie. Le sujet n'a présenté aucune difficulté pour les élèves quand il s'est agi de choisir une oeuvre littéraire ou d'exposer un défi. Tandis que le sujet se prêtait, dans une certaine mesure, à un résumé pour montrer comment le défi est né, la plupart des élèves ont réussi à consacrer la majeure partie de leur composition à l'importance du défi et de ses effets.

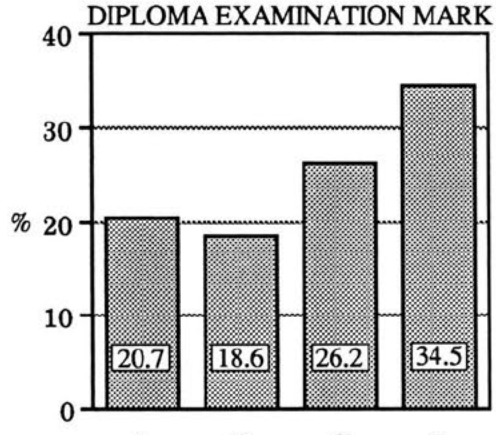
Pour le "Traitement du sujet: Choix et formulation des idées", 5,7% des élèves ont reçu une note de (5) SUPÉRIEUR, 42,9% ont reçu une note de (4) COMPÉTENT, et 45,7% ont reçu une note de (3) SATISFAISANT. Seulement 2,9% (1 élève) ont reçu une note de (2) LIMITÉ et seulement 2,9% (1 élève) ont reçu une note de (1) PAUVRE. Ces notes se comprennent le mieux dans le contexte des exercices et des descripteurs dans les guides de notation. Le texte des guides de notation se trouve dans le *Bulletin de Français 30, Programme des examens en vue du diplôme, Année scolaire 1991-92.*

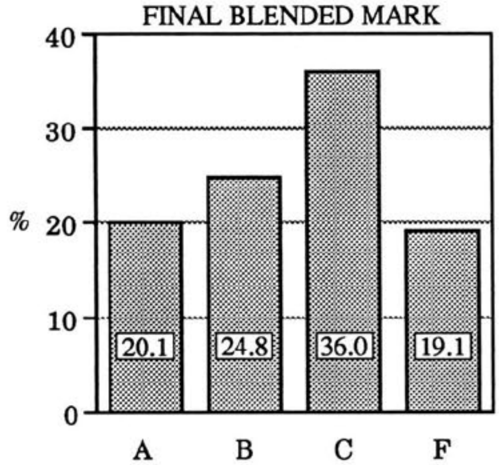
Les élèves ont employé la langue clairement et correctement avec seulement 5,7% (2 élèves) recevant une note inférieure à (3) SATISFAISANT dans la catégorie "Connaissance de la langue". Une bonne organisation et un bon style étaient aussi manifestes, comme le montrent les résultats en pourcentage, à la page 2.

Note: Un rapport sur la Partie B: Compréhension écrite n'est pas inclus dans ce *Rapport des examinateurs* de juin 1991 parce que la Partie B de cet examen n'est pas dans le domaine public. Certaines questions de cette partie de cet examen de juin 1991 peuvent être réutilisées dans de futurs examens.

# Mathematics 30 Diploma Examination Results
## Examiners' Report, June 1991







The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the Mathematics 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

### DESCRIPTION OF THE EXAMINATION

The Mathematics 30 Diploma Examination consists of three parts: a multiple-choice section of 40 questions worth 61.5%, a numerical-response section of 12 questions worth 18.5%, and a written-response section of three questions worth 20% of the total examination mark.

### ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 10 278 students who wrote the June 1991 examination.

- 80.9% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 20.1% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

While a high percentage of students achieved excellence in Mathematics 30, an increased number of students failed to meet course standards. Overall, students continued to have difficulty applying their mathematical knowledge.

### PROVINCIAL AVERAGES

- The average school-awarded mark was 66.2%.
- The average diploma examination mark was 59.4%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 63.2%.

# RESULTS and EXAMINERS' COMMENTS

## SUBTEST

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared.

Results are in average raw scores.

Machine scored: 31.8 out of 51

Written response: 6.1 out of 13

- Course Content
  - Trigonometry: 9.7 out of 15
  - Quadratic Relations: 7.8 out of 14
  - Sequences, Series, Limits: 7.2 out of 13
  - Statistics: 5.2 out of 8
  - Logarithms: 3.8 out of 6
  - Polynomial Functions: 4.3 out of 8
- Cognitive Levels
  - Knowledge: 3.3 out of 5
  - Comprehension: 11.1 out of 17
  - Application: 19.6 out of 34
  - Higher Mental Activities: 3.9 out of 8

### EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, those with round brackets ( ) indicate numerical-response questions, and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | | Examination Emphasis (%) |
|---|---|---|---|---|---|
| | Knowledge | Comprehension | Application | Higher Mental Activities | |
| Trigonometry | 7 | 3, 4, 5, 13, (1), (2) | 1, 2, 6, 8, 10, 11, 12 | 9, (3)* | 24.6 |
| Quadratic Relations | 18 | 15, 16, 20, (4) | 14, 19, 21, [3] | 17, (5) | 21.5 |
| Sequences, Series, Limits | 27 | 24, 25, (6) | 22, 23, [2], (7) | 26 | 20.0 |
| Statistics | (9) | 29, 33 | 28, 30, 31, (8) | 32 | 12.3 |
| Logarithms | | 34 | 36, 37, (10) | 35, (11) | 10.8 |
| Polynomial Functions | 38 | (12) | 39, [1] | 40 | 10.8 |
| Examination Emphasis (%) | 7.7 | 27.7 | 50.8 | 13.8 | 100 |

*Numerical-response question 3 was deleted because the wording led students to an incorrect strategy.

The examination has a balance of question types and difficulties. It is designed so that students capable of achieving the acceptable standard would obtain a mark of 50% or higher and students capable of achieving the standard of excellence would obtain a mark of 80% or higher. Future examinations will require students to combine an understanding of mathematical concepts, an ability to apply procedural skills, and complete accuracy to receive full marks. Greater emphasis will be placed on the communication of students' understanding of mathematical concepts and procedures. Students will need to achieve these learner expectations if they are to be successful on the examination.

## MULTIPLE CHOICE

| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | B | 77.9 | 14 | A | 71.3 | 27 | D | 47.9 |
| 2 | D | 79.0 | 15 | A | 69.1 | 28 | B | 91.9 |
| 3 | C | 90.3 | 16 | C | 76.9 | 29 | C | 74.9 |
| 4 | B | 55.7 | 17 | A | 41.2 | 30 | A | 45.7 |
| 5 | A | 84.3 | 18 | D | 58.2 | 31 | B | 61.0 |
| 6 | C | 65.6 | 19 | B | 64.3 | 32 | B | 41.0 |
| 7 | D | 67.2 | 20 | C | 58.5 | 33 | A | 74.3 |
| 8 | C | 57.8 | 21 | A | 65.5 | 34 | B | 78.4 |
| 9 | A | 76.9 | 22 | B | 90.2 | 35 | C | 59.1 |
| 10 | B | 47.5 | 23 | D | 75.2 | 36 | D | 57.9 |
| 11 | D | 41.4 | 24 | A | 45.5 | 37 | C | 51.7 |
| 12 | D | 51.3 | 25 | A | 72.1 | 38 | B | 86.0 |
| 13 | C | 55.8 | 26 | C | 42.3 | 39 | D | 66.7 |
| | | | | | | 40 | D | 46.6 |

*Difficulty – percentage of students answering the question correctly

## MULTIPLE CHOICE (continued)

Students were expected to achieve the acceptable standard on all knowledge and comprehension questions — those questions that required students to apply one concept. Many students met this expectation; however, knowledge and comprehension questions comprised only 35% of the examination. Students achieving the standard of excellence were expected to demonstrate a thorough knowledge of mathematics and to apply this knowledge to new situations. Questions 9, 17, 26, 32, 35, and 40 required students to apply their knowledge of mathematics to a new situation. Illustrative questions follow:

**38.** If $x + 2$ is a factor of the polynomial function $P(x)$, then

- **A.** $P(2) = 0$
- ***B.** $P(-2) = 0$
- **C.** $P(x + 2) = 0$
- **D.** $P(x - 2) = 0$

**Question 38** required students to identify the relationship between the factor and zero of a polynomial function. Of the students who wrote this examination, 86% were able to recognize this relationship and correctly identify the correct response. Close to three-quarters of the students who did not meet the acceptable standard were able to identify the relationship on this knowledge level question. Written-response question 1 also required this knowledge in order to begin a strategy to solve the problem, and yet 47.2% of all students were not able to transfer this knowledge to an application situation.

**39.** If $x^4 + 2x^2 - 1$ is divided by $x + 1$, then the remainder is

- **A.** -4
- **B.** -2
- **C.** 0
- ***D.** 2

To solve **question 39**, students could have used a number of methods: long division of polynomials, synthetic division, or the Factor Theorem. Three-quarters of the students who achieved the acceptable standard and one-half of the students who did not meet the acceptable standard were able to use one of these methods to identify the correct answer on this application level question. As in question 38, the knowledge used to answer question 39 was required to respond to written-response question 1.

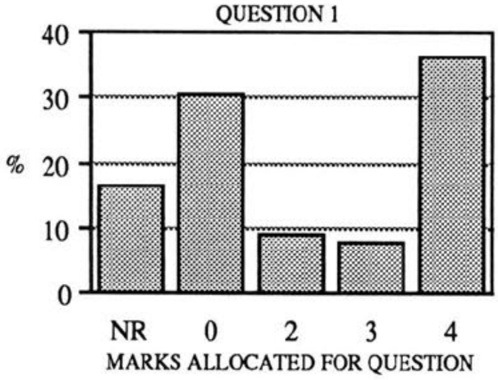
## NUMERICAL RESPONSE

| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | 002.6 | 72.3 | 5 | 023.2 | 28.5 | 9 | 025.5 | 68.7 |
| 2 | 082.1 | 47.5 | 6 | 356.4 | 68.8 | 10 | 001.9 | 75.9 |
| 3 | – | – | 7 | 153.0 | 59.2 | 11 | 009.5 | 56.9 |
| 4 | 010.4 | 41.0 | 8 | 021.0 | 58.7 | 12 | 006.0 | 40.2 |

*Difficulty – percentage of students answering the question correctly

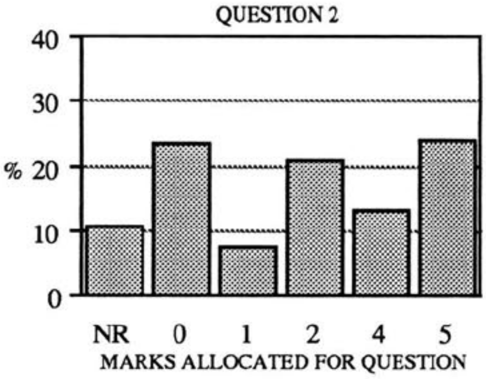
## WRITTEN RESPONSE

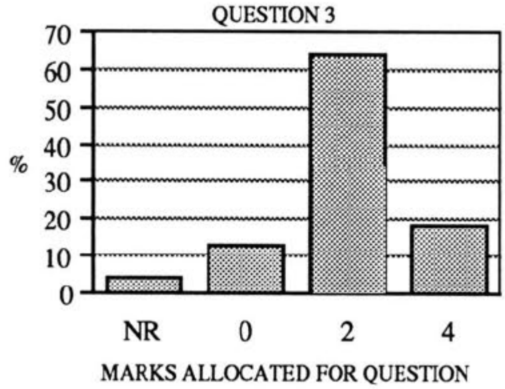
Questions in the written-response section dealt with three of the six content strands for Mathematics 30. Students performing at the acceptable standard were expected to obtain at least half marks on all questions. The marks assigned for analytic skills and conceptual understanding were combined such that not all scores between one and five for any given question were possible. Students performing at the standard of excellence were expected to answer all questions almost perfectly. However, 47.2% of all students received no marks for question 1, 34.6% received no marks for question 2, and 17.6% received no marks for question 3.



**Question 1** required students to recognize the relationship between the $x$-intercept of the graph of a polynomial function, the factors of the polynomial function, and the zeros of the polynomial function. It was expected that students would be able to achieve at least 50% on this question. Only 36% of the students were able to recognize this relationship. Approximately 17% of the students were able to start a solution and carry through to identify the relationship between the zeros and the factors of the polynomial function. Although the majority students were able to choose the correct solution in the multiple-choice section of the examination, they were not able to begin to solve the problem in the written-response section. On this 4-mark question, the average mark was 1.86 or 46.5% of the available mark.

**Question 2** required students to write an expression for the second term in an arithmetic sequence and the second term in a geometric sequence. Students were then asked to identify the relationship between the geometric sequence and the arithmetic sequence. It was expected that students would have no difficulty responding to the first part of the question but would have some difficulty identifying the relationship between the two sequences. We did expect that students would be able to recognize that a relationship exists. Only 20.9% of the students were able to write an expression for the second terms in both the arithmetic and geometric sequence. These students then had difficulty in recognizing the relationship between the two sequences; 13% of the students were able to write the expression for the second terms in the sequences and recognize the relationship. On this 5-mark question, the average mark was 2.21 or 44.2% of the available mark.



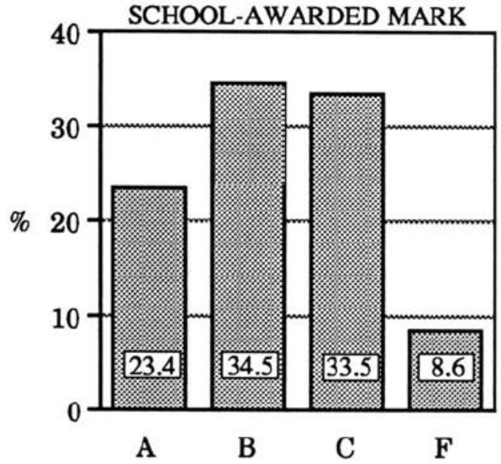


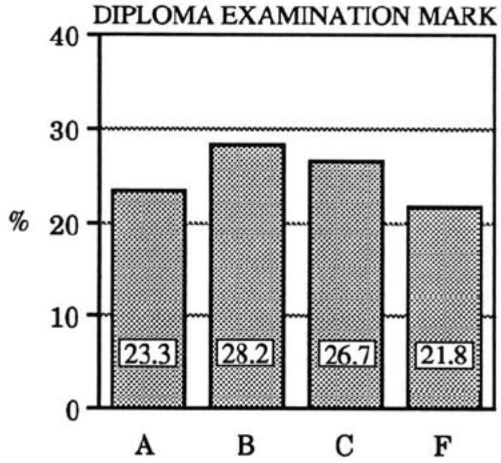
**Question 3** required students to write the equation of a circle and the equation of a parabola. The last part of the question required students to identify the value of $x$ for the points where the circle and the parabola intersect. We expected that students would have no difficulty on the first two parts of this question but would experience some difficulty on the last part. Overall, students were able to identify the equation of a circle and a parabola on the multiple-choice section of the examination. In the written-response section of the examination, 17.6% of the students were not able to begin a solution to this problem, 64% of the students were able to identify an equation for either the circle or the parabola but could not identify the value of $x$ for the points where the circle and the parabola intersect, and 18.4% of the students were able identify the equations for both the circle and parabola and then determine that these two graphs do intersect. On this 4-mark question, the average mark was 2.02 or 50.5% of the available mark.

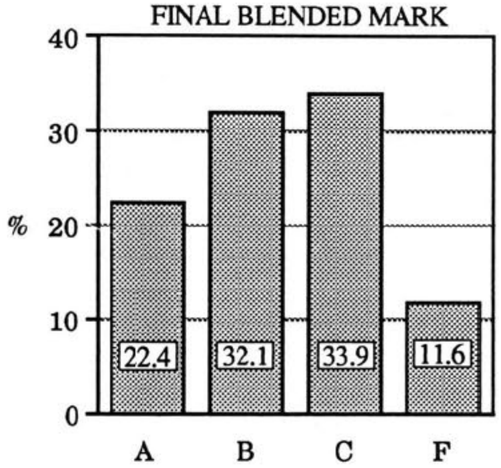
Note: Overall, markers have noticed that more students are explicitly explaining their work. This should continue to be encouraged as we move to students' descriptions of mathematical concepts and problem solving.

For further information, contact Florence Glanfield, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# Biology 30 Diploma Examination Results
# Examiners' Report, June 1991


SCHOOL-AWARDED MARK


DIPLOMA EXAMINATION MARK


FINAL BLENDED MARK

The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the Biology 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

## DESCRIPTION OF THE EXAMINATION

The Biology 30 Diploma Examination consists of two parts: a multiple-choice section of 70 questions worth 70% and a written-response section of seven questions worth 30% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 11 078 students who wrote the June 1991 examination.

- 88.4% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 22.4% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

Generally, student achievement in Biology 30 has improved. Students were better able to create solutions to problems than in previous years. Students also demonstrated a good understanding of the major concepts in human biology.

## PROVINCIAL AVERAGES

- The average school-awarded mark was 67.6%.
- The average diploma examination mark was 64.5%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 66.4%.

# RESULTS and EXAMINERS' COMMENTS

## SUBTEST

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared.

Results are in average raw scores.

Machine scored: 48.0 out of 70

Written response: 16.4 out of 30

- Course Content
  - Cellular Processes: 4.7 out of 7
  - Homeostatic Mechanisms: 3.2 out of 5
  - Nutrition and Digestion: 8.8 out of 15
  - Body Fluids: 11.7 out of 17
  - Breathing, Gas Exchange, and Transport: 3.5 out of 5
  - Energy Release: 2.8 out of 5
  - The Kidney: 6.9 out of 10
  - Regulation of the Internal Environment: 13.4 out of 21
  - Voluntary Movement and Body Support: 2.1 out of 3
  - Human Reproduction: 7.2 out of 12
- Process Skills: 25.9 out of 45
  - Multiple-choice questions 3, 5, 7, 16, 21, 27, 32, 33, 40, 42, 44, 51, 55, 57, 58, 59, 60, and 62; and written-response questions 1, 2, 3, 4, 5, and 7.
- Cognitive Levels
  - Knowledge: 18.1 out of 25
  - Comprehension and Application: 35.3 out of 55
  - Higher Mental Activities: 11.1 out of 20

## EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Knowledge | Comprehension and Application | Higher Mental Activities | |
| Cellular Processes | 1, 2 | 3, 4, 6 | 5, 7 | 7 |
| Homeostatic Mechanisms | 8 | [2] | | 5 |
| Nutrition and Digestion | 9, 10, 11, 12 | 13, 14, 15, 16, 17 | [3] | 15 |
| Body Fluids | 18, 20, 24, 25 | 19, 21, 22, 23, 27, 28, [5] | 26 | 17 |
| Breathing, Gas Exchange, and Transport | 29, 30 | 31, 32 | 33 | 5 |
| Energy Release | 34 | | [4] | 5 |
| The Kidney | 37, 39, 43 | 35, 36, 38, 40, 41, 42 | 44 | 10 |
| Regulation of the Internal Environment | 45, 46, 47, 54, 56 | 48, 49, 50, 51, 52, 53, 55, 57, [6] | 58, 59, 60, 61, 62 | 21 |
| Voluntary Movement and Body Support | 63 | 64, 65 | | 3 |
| Human Reproduction | 66, 69 | 67, 68, 70<br>[1], [7] | | 12 |
| Examination Emphasis (%) | 25 | 55 | 20 | 100 |

The examination has a balance of question types and difficulties. It is designed so that students capable of achieving the acceptable standard would obtain a mark of 50% or higher and students capable of achieving the standard of excellence would obtain a mark of 80% or higher. This examination is parallel in structure to the 1990 Biology 30 examinations. It is significant, therefore, that the percentage of students who achieved an A on the June 1991 examination is 23.3% compared with 18.8% of those who wrote the June 1990 examination. Correspondingly, the percentage of students who obtained an F on this examination is 21.8% compared with 29.1% of those who wrote the June 1990 examination. The number of students who received blended marks in Biology 30 this June compared with June 1990 increased by 4.6%. Approximately 11.5% of the students who wrote the Biology 30 Diploma Examination in June 1991 had written at least one other Biology 30 diploma examination during the January 1990 to January 1991 period. This subpopulation (1 276) achieved an examination mean of 57.8% compared with 64.5% for the total population (11 078). By rewriting, however, this same group (1 276) increased their examination mean score from 46.5% to 57.8%.

## MULTIPLE CHOICE

| QUES. | KEY | DIFF.* | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. | QUES. | KEY | DIFF. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 83.7 | 15 | A | 68.7 | 29 | C | 81.0 | 43 | A | 72.4 | 57 | B | 54.6 |
| 2 | A | 74.5 | 16 | A | 72.1 | 30 | A | 74.9 | 44 | B | 72.2 | 58 | C | 70.7 |
| 3 | D | 71.1 | 17 | C | 59.4 | 31 | B | 77.1 | 45 | B | 75.3 | 59 | D | 35.9 |
| 4 | D | 53.6 | 18 | B | 71.7 | 32 | B | 71.9 | 46 | A | 64.1 | 60 | C | 65.0 |
| 5 | B | 57.0 | 19 | B | 59.8 | 33 | D | 48.0 | 47 | D | 72.7 | 61 | D | 70.0 |
| 6 | C | 68.5 | 20 | B | 72.4 | 34 | A | 44.0 | 48 | C | 71.9 | 62 | B | 74.7 |
| 7 | D | 64.7 | 21 | C | 73.6 | 35 | B | 83.8 | 49 | B | 54.8 | 63 | A | 82.2 |
| 8 | C | 66.9 | 22 | C | 72.3 | 36 | D | 82.0 | 50 | D | 72.0 | 64 | B | 73.1 |
| 9 | D | 83.2 | 23 | D | 64.4 | 37 | A | 79.5 | 51 | D | 53.0 | 65 | B | 58.6 |
| 10 | A | 79.1 | 24 | C | 70.3 | 38 | A | 65.6 | 52 | C | 73.8 | 66 | B | 87.9 |
| 11 | B | 77.9 | 25 | D | 67.6 | 39 | B | 41.5 | 53 | A | 55.5 | 67 | A | 88.4 |
| 12 | B | 77.9 | 26 | A | 81.0 | 40 | C | 66.3 | 54 | A | 73.6 | 68 | B | 84.4 |
| 13 | D | 70.8 | 27 | D | 61.0 | 41 | B | 65.4 | 55 | D | 58.4 | 69 | A | 62.9 |
| 14 | C | 59.0 | 28 | D | 58.2 | 42 | C | 59.7 | 56 | D | 68.3 | 70 | C | 68.3 |

*Difficulty – percentage of students answering the question correctly

## MULTIPLE CHOICE (continued)

Students who achieved the acceptable standard demonstrated an understanding of key biological terms by identifying appropriate applications and examples (questions 3, 17, and 41). They demonstrated understanding of biological concepts by tracing pathways that materials follow in body systems (questions 38 and 43) and by sequentially ordering the major steps of a physiological process (question 52).

Students who achieved the standard of excellence demonstrated the ability to interpret interrelated sets of data presented in either tables or graphs (questions 33 and 59).

Detailed comments follow on three questions, presented in the order of **increasing cognitive level.**

47. Which part of the ear has the greatest influence upon body balance?

A. Cochlea
B. Ossicles
C. Eustachian tube
*D. Semicircular canals

**Question 47** required students to recall the functions of four specialized parts of the ear. Students also had to know that the maintenance of body balance requires sensory input transmitted by nerve tracts that originate in the inner ear. Recognition of the location in the ear of each of the four parts and their structural characteristics should have logically ruled out two alternatives. To distinguish between the cochlea and the semicircular canals required more refined understanding because both generate sensory impulses. Of the students who achieved the standard of excellence (A), 95.8% selected the correct response and only 2.0% selected parts of the middle ear. Of the students who did not achieve the acceptable standard, 41.9% selected the correct answer and 31.9% selected parts located in the middle ear.

**Use the following information to answer question 70.**

Random Order of Events in the Experimental Reproduction of Purebred Cattle

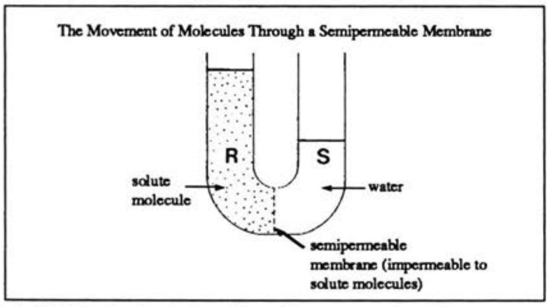
I. Each fertilized egg undergoes cell division and the resulting cell mass is subdivided in the laboratory, producing genetically identical embryos.
II. A purebred cow is injected with a superovulation hormone (high concentration of FSH).
III. Eggs are removed from the purebred cow and are artificially inseminated.
IV. Embryos are transplanted into other cows and placental formation occurs.
V. Many follicles begin to mature.

70. An Alberta company that specializes in the breeding of purebred cattle has devised a procedure for producing many genetically identical offspring from one purebred cow. What order of events would likely result in a successful procedure?

A. II, III, V, IV, I
B. II, V, I, III, IV
*C. II, V, III, I, IV
D. III, II, V, I, IV

**Question 70** required students to recall the meaning of key biological terms, to understand the sequential steps in human reproduction, and then to apply their understanding to nonhuman mammalian biotechnology. This comprehension and application question was answered correctly by 92.0% of the students who achieved the standard of excellence (A) on the examination. Of the students who obtained a B or a C level of achievement, 69.4% selected the correct answer, whereas 40.5% of the students who failed the examination selected the correct answer. The most common misconceptions related to the sequence of fertilization with respect to embryo development (alternative B), and the sequence of egg and follicle formation (alternative A). Only 8% of the total population was confused about the sequence of locations for the technological procedures, i.e., cow versus laboratory (alternative D).

**Use the following diagram to answer question 7.**


The Movement of Molecules Through a Semipermeable Membrane

7. The initial levels of solutions R and S were equal and then gradually changed over time to the levels shown in the diagram. What is a probable cause of this change?

A. Water was actively transported by the membrane from solution S to solution R.

B. More solute molecules moved from solution S to solution R, resulting in an increase in the level of solution R.

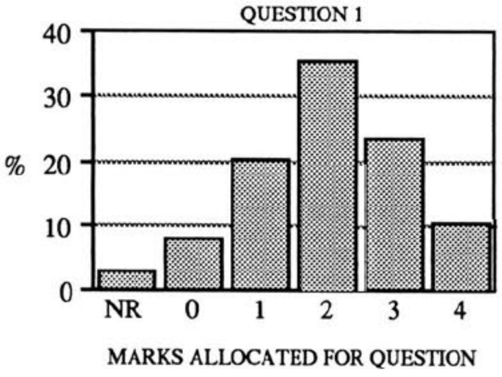
C. The solute concentration of solution S was greater than that of solution R, resulting in an unequal movement of water.

*D. The solute concentration of solution R was greater than that of solution S, resulting in an unequal movement of water.

**Question 7** required students to understand the transport processes utilized by cells and to apply these to a nonliving laboratory model. Vocabulary that has its origin in the physical sciences (solute concentration, molecule) also had to be understood. Students first had to analyse the investigative procedure and data presented. It then became possible for them to evaluate the possible interpretations provided. This analysis, evaluation, and process skill question was answered correctly by 94.2% of the students who achieved the standard of excellence (A) on the examination. Of the students who obtained a B or a C level of achievement, 63.5% selected the correct answer, whereas 36.2% of the students who failed the examination selected the correct answer. Very few students (1.0%) who achieved the standard of excellence interpreted the data in terms of active transport (alternative A). However, a significant number of students (23.0%) who failed the examination assumed that active transport can occur in a nonliving laboratory model. A significant number of students did not understand the specific meanings of solute, solution, and solute concentration. Of the students who failed the examination, 40.7% selected either alternative B or alternative C.

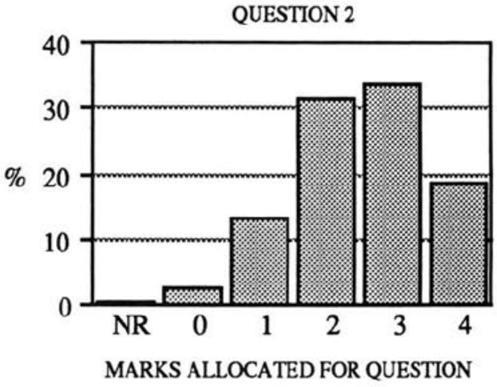
## WRITTEN RESPONSE

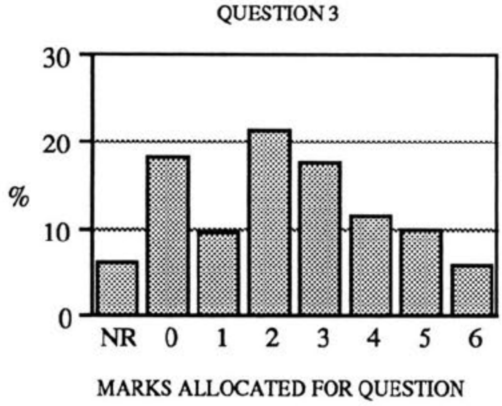
The seven questions in the written-response section are designed to measure achievement on nine of the 10 major core concepts for Biology 30. All the questions went beyond measuring simple recall of information. Questions 1, 5, and 7 each required the integration of ideas from at least two different core concepts. Questions 1, 3, and 7 required students to apply concepts and to form predictions. Questions 2, 4, and 6 required students to interpret experimental data and generate explanations. Question 5 required students to construct a graph using data provided in two tables. The average percentage of no responses (2.8) indicates that students approached the examination with serious intent and commendable effort. The average percentage of responses that were awarded a zero mark was 9.1.



**Question 1:** Most students (69%) identified plausible adverse physiological effects of anabolic steroid use by both males and females. These students therefore obtained at least two out of the four possible marks for this comprehension and application question. In addition, most students (72%) who achieved the standard of excellence on the examination were able to relate the properties of anabolic steroids to the compositional characteristics of the cell membrane and/or could account for the retention of body fluid in terms of osmotic pressure. In contrast, a very small proportion (6.3%) of those who failed the examination could apply the concepts of membrane structure and/or osmosis to the properties of anabolic steroids. Too many students focused erroneously on the size of particles. Also, many students in explaining water retention in tissue focused on kidney regulation by ADH or aldosterone rather than on the concept of osmosis. On this 4-mark question, the average mark was 2.02 or 51% of the available mark.

**Question 2:** Most students understood the concept of experimental control as illustrated by this question. Most students also recognized that increased surface area was the cause of the vigorous reaction in test tube H. Responses to part c revealed some misconceptions about the function of enzymes. Many students confused the digestion of liver tissue by catalase with the breakdown of hydrogen peroxide. They thought of enzymes only in the context of digestion not as facilitators of other types of reactions. Some students claimed that catalase was used up in the reaction but that the liver replenished it. The majority of students did not clearly state that enzymes are reusable. Less than half (45.1%) the students who achieved the standard of excellence on the examination obtained full marks. On this 4-mark question, the average mark was 2.53 or 63% of the available mark.

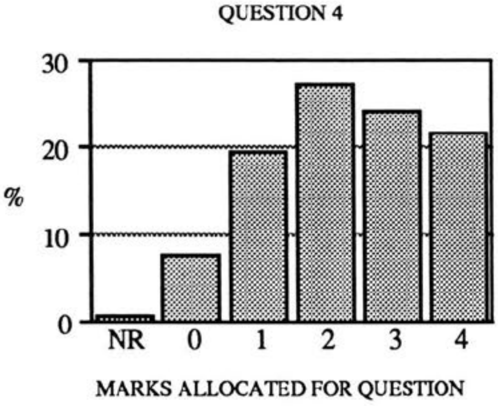


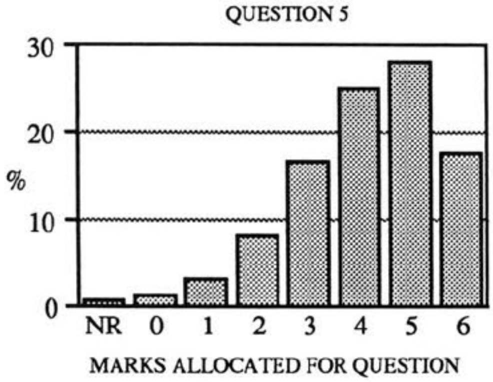


**Question 3:** Although 15.8% of the students obtained a mark of 83.3% or higher on this question, the majority (55.4%) received a maximum of one mark for biological concepts and one mark for communication skills. The presentation of general answers devoid of specifics was the primary cause of the low scores. Secondly, many students who identified an effect of the surgery did not support their choice with a satisfactory explanation. Other students described the normal function of the stomach but did not explain the changes that would occur as a result of the surgery. Very few students identified compensatory actions that would take place in other regions of the digestive system. A fair number of students confused gastrin with gastric juice, carbohydrates with proteins, excretion with secretion, and reabsorption with absorption. Nevertheless, examination markers did observe that student communication skills on the whole have improved over the past two years. On this 6-mark question, the average mark was 2.35 or 39% of the available mark.

**WRITTEN RESPONSE** (continued)

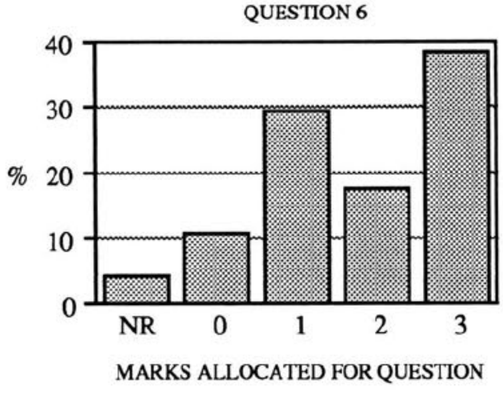
**Question 4:** This question combined a selected response (part a) with a three-part created response (part b). Students who chose a wrong response to part a could still obtain one or two marks for part b, because parts a and b were not tied together. For example, if the student selected blood sample I, it was possible to provide an acceptable explanation for glucose and carbon dioxide but not for lactic acid. Most students selected blood sample III, however. Students were prone to restate data rather than provide causal relationships. If descriptions of cause-and-effect relationships were attempted, too often they were in terms of gas exchange (more $CO_2$ because there is less $O_2$) rather than in terms of aerobic and anaerobic respiration. Many students did not adequately review cellular respiration in the context of muscle function. However, 62.2% of the students who achieved the standard of excellence obtained full marks. On this 4-mark question, the average mark was 2.3 or 58% of the available mark.

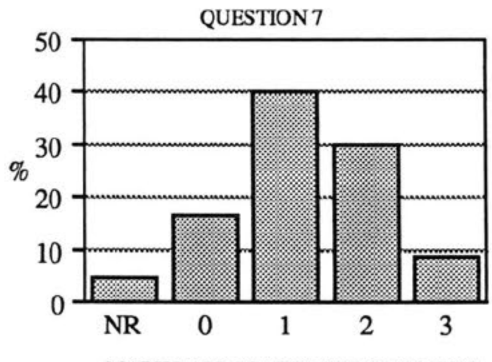




**Question 5**: Biology 30 student graphing skills have improved dramatically over the past several years. Of the students who achieved the acceptable standard on the examination, only 6.5% received less than three marks for this question. Responses did reveal some student uncertainties about the manipulated variable, a proper title, and the use of two scales. Most students identified the medulla oblongata as the brain region that initiates heart and breathing rate regulatory impulses. Many students limited their description of a "mechanism" to the identification of a structure or chemical. They did not include a description of the process of which the structure or chemical was a part. It was apparent that many students continue to correlate a value of one mark with a single idea (name of a structure) rather than with a complete answer. Of those students who achieved the standard of excellence on the examination, almost half (46.2%) obtained full marks. Of those who failed the examination, 1% obtained full marks. On this 6-mark question, the average mark was 4.14 or 69% of the available mark.

**Question 6**: This question was answered exceptionally well by those students who achieved the standard of excellence on the examination: 73.1% obtained full marks. These students recognized from the diagram that the retina produced the variations in visual perception. They had a clear understanding of the blind spot as well as the fovea. They clearly related blue color vision to the presence of cones and grey vision to the presence of rods. These students understood that the variations in perception could result from the normal function of the eye and did not necessarily suggest that the eye had defects (lens unable to focus, colorblindness). Of the students who failed the examination, 85.9% obtained one mark or less because they could not interpret the diagram and data. They also lacked sufficient understanding of the role of the retina in visual perception. On this 3-mark question, the average mark was 1.79 or 60% of the available mark.

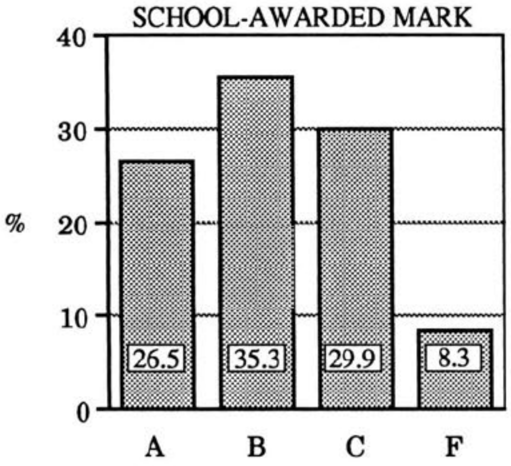


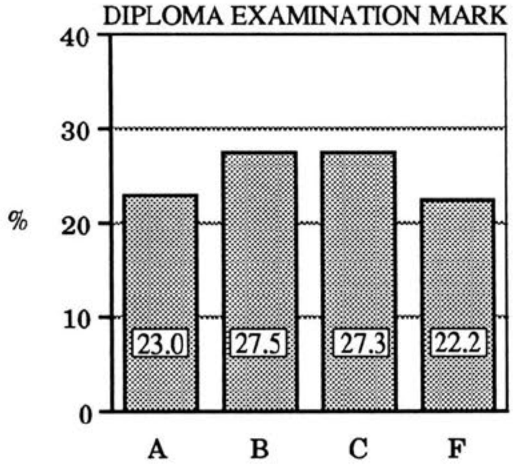


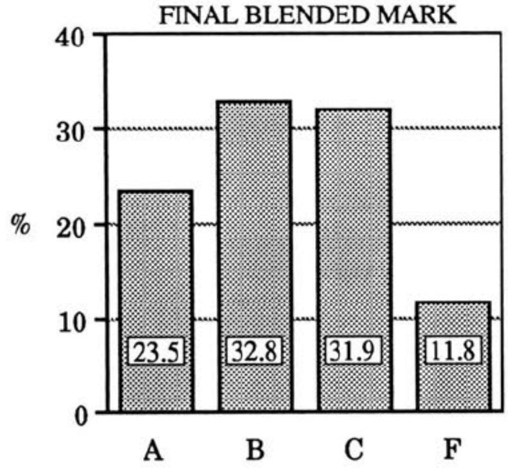
**Question 7**: The students who achieved the standard of excellence on the examination found this question to be the most difficult of the seven; 26.2% obtained full marks. The inability of students to express themselves accurately and descriptively cost them marks. Their incorrect use of key terms such as secretion, excretion, ejaculation, sperm, and semen communicated erroneous concepts. Most students who obtained a B or a C level of achievement on the examination responded in generalities and did not address the "how" question. These students also had difficulty distinguishing between quantity and quality. It was apparent from answers to part a that most students could easily identify the prostate gland in the unlabelled diagram. However, most of these same students did not understand the gland's function, as was evident from their responses to part b. On this 3-mark question, the average mark was 1.27 or 42% of the available mark.

For further information, contact Lowell Hackman, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# Chemistry 30 Diploma Examination Results Examiners' Report, June 1991







The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the Chemistry 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

## DESCRIPTION OF THE EXAMINATION

The Chemistry 30 Diploma Examination consists of three parts: a multiple-choice section of 49 questions worth 70%, a numerical-response section of seven questions worth 10%, and a written-response section of three questions worth 20% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 8 610 students who wrote the June 1991 examination.

- 88.2% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 23.5% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

Overall, student achievement in Chemistry 30 was acceptable, particularly in their knowledge of core concepts. However, students continued to have difficulty with laboratory-related skills and processes, and in organizing and communicating their chemistry knowledge.

## PROVINCIAL AVERAGES

- The average school-awarded mark was 68.7%.
- The average diploma examination mark was 64.1%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 66.8%.

# RESULTS and EXAMINERS' COMMENTS

## SUBTEST

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared.

Results are in average raw scores.

Machine scored: 37.81 out of 56

Written response: 7.03 out of 14

- Course Content
  - Chemical Energetics: 13.76 out of 22
  - Acids and Bases: 15.83 out of 24
  - Oxidation-Reduction: 15.25 out of 24
- Process Skills: 26.22 out of 42
  - Multiple-choice questions 5, 6, 7, 8, 9, 15, 16, 17, 19, 23, 24, 25, 27, 28, 29, 30, 35, 36, 38, 39, 41, 44, 46, and 47; numerical-response questions 2, 5, 6, and 7; and written-response questions 1, 2, and 3.
- Cognitive Levels
  - Knowledge: 14.08 out of 19
  - Comprehension and Application: 22.94 out of 35
  - Higher Mental Activities: 7.82 out of 16

### EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, those with round brackets ( ) indicate numerical-response questions, and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Knowledge | Comprehension and Application | Higher Mental Activities | |
| Chemical Energetics | 1, 3, 5, 6, 12 | 2, 4, 7, 8, 10, 13, 14, (1), (2), [1] | 9, 11, [1] | 32 |
| Acids and Bases | 15, 19, 21, 22, 24, 30 | 16, 17, 18, 20, 23, 25, 26, 27, 28, (4), (5), [2] | 29, 31, (3) | 34 |
| Oxidation-Reduction | 32, 34, 36, 39, 40, 42, 48, 49 | 33, 35, 37,44, 45, 47, (6), [3] | 38, 41, 43, 46, (7), [3] | 34 |
| Examination Emphasis (%) | 27 | 53 | 20 | 100 |

Note: For reporting purposes, the Higher Mental Activities component of the written-response section has been combined with the Comprehension and Application component.

This examination has a balance of question types and difficulties. It is designed so that students capable of achieving the acceptable standard would obtain a mark of 50% or higher and students capable of achieving the standard of excellence would obtain a mark of 80% or higher. Future examinations will continue to require students to demonstrate clarity in their thinking and understanding of concepts by applying their knowledge to new and novel situations. Students who achieved these expectations were successful on this examination. The next series of diploma examinations will require students to communicate their answers in a clear and concise fashion as well.

## MULTIPLE CHOICE

| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | B | 79.1 | 18 | B | 79.9 | 35 | C | 77.0 |
| 2 | B | 56.4 | 19 | B | 48.9 | 36 | D | 79.7 |
| 3 | A | 89.1 | 20 | D | 82.4 | 37 | B | 79.6 |
| 4 | D | 64.7 | 21 | D | 75.7 | 38 | B | 60.7 |
| 5 | C | 85.7 | 22 | A | 90.5 | 39 | A | 62.0 |
| 6 | A | 71.5 | 23 | C | 46.9 | 40 | A | 88.2 |
| 7 | C | 78.1 | 24 | A | 80.0 | 41 | C | 72.6 |
| 8 | D | 80.8 | 25 | B | 78.3 | 42 | A | 92.1 |
| 9 | B | 58.5 | 26 | C | 54.3 | 43 | C | 40.5 |
| 10 | D | 70.7 | 27 | B | 57.9 | 44 | B | 86.6 |
| 11 | D | 47.0 | 28 | C | 77.2 | 45 | A | 43.5 |
| 12 | B | 81.2 | 29 | A | 42.6 | 46 | D | 41.0 |
| 13 | C | 69.6 | 30 | C | 60.5 | 47 | C | 93.7 |
| 14 | A | 44.2 | 31 | D | 60.2 | 48 | C | 56.0 |
| 15 | B | 69.9 | 32 | B | 68.4 | 49 | B | 54.2 |
| 16 | C | 87.9 | 33 | A | 83.1 | | | |
| 17 | D | 89.0 | 34 | D | 75.1 | | | |

*Difficulty – percentage of students answering the question correctly

## MULTIPLE CHOICE (continued)

The following questions were selected for discussion because they exemplify what is required to meet the acceptable standard and the standard of excellence.

**14.** The amount of heat required to change 54.1 g of water at 25.0°C to steam at 130.0°C is

***A.** 143 kJ
**B.** 140 kJ
**C.** 23.8 kJ
**D.** 11.4 kJ

**Question 14**: Although 85.8% of the students recognized that a change in kinetic energy was involved, over half these students did not recognize that there is also a change in state when liquid water is transformed into steam and therefore did not consider the energy required to convert water into steam. Consequently, fewer than half the students (44.2%) correctly answered the question. This result suggests that those students who did not achieve the acceptable standard had difficulty recognizing the changes in energy associated with heating or cooling a substance beyond the point where it undergoes a change in state.

**16.** Four unknown solutions labelled I, II, III, and IV were tested and these data were obtained:

| Indicator | I | II | III | IV |
|---|---|---|---|---|
| thymol blue | green | yellow | green | orange |
| methyl orange | yellow | orange | yellow | red |
| thymolphthalein | colorless | colorless | slight blue | colorless |

The acidic solution(s) is/are

**A.** I only
**B.** II only
***C.** II and IV
**D.** I and III

**Question 16**: Most students (87.9%) correctly analysed indicator colors and determined which solutions were acidic. Those students who answered incorrectly did not appear to make a common mistake, which suggests that students achieving the acceptable standard have a good knowledge of indicator color and the pH range of acids.

## NUMERICAL RESPONSE

| Question | Answer | Difficulty (%) | Question | Answer | Difficulty (%) |
|---|---|---|---|---|---|
| 1 | 4, 3, 1, 2 | 29.4 | 5 | 2, 1, 4, 3 | 46.9 |
| 2 | 14.6 | 77.0 | 6 | 1.25 | 73.7 |
| 3 | 11.8 | 31.8 | 7 | 13.2 | 34.3 |
| 4 | 3, 4, 1, 2 | 75.0 | | | |

Most students correctly followed the instructions for filling in the answer sheet. Students who wrongly recorded correct answers were not penalized; however, students who did not round their answers as instructed lost marks.

The average for **question 1** was 29.4%. The question discriminated well between strong and fairly strong students. The most frequent mistake (34.2%) students made was stating that there is more energy associated with boiling one mole of water than there is in forming an equivalent amount of water from its elements. The next most common mistake (14.6%) was stating that the magnitude of energy required to warm ice is greater than that required to burn hydrogen or boil water. The results of this question suggest that students achieving the standard of excellence can successfully analyse the magnitude of energy associated with the changes of a substance.

**Use the following information to answer question 1.**

1. $H_2O(s) \rightarrow H_2O(l)$ at 0°C
2. $H_2O(s)$ at -60°C $\rightarrow H_2O(s)$ at 0°C
3. $H_2O(l) \rightarrow H_2O(g)$ at 100°C
4. $H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(g)$ at 25°C

**1.** When the magnitude of energy changes for one mole is ranked from highest to lowest, the order is _____ , _____ , _____ , _____ .

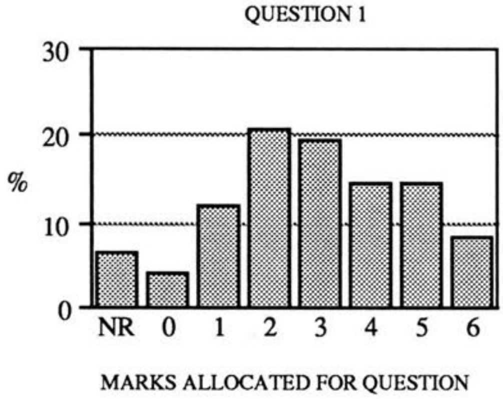
## NUMERICAL RESPONSE (continued)

The average for **question 6** was 73.7%. The question discriminated between fair and weak students. The most common mistake (8.1%) students made was to add the two reduction potentials rather than to find the difference between the two. The next most common error (5.6%) resulted when students doubled the silver reduction potential. The last identified error (1.3%) was a combination of the previous two. These results suggest that students achieving the acceptable standard are capable of tasks such as determining the net voltage of an operating cell by using the data booklet to select appropriate half-reactions and then using this information to calculate the voltage of a cell.

**6.** The voltage produced by an electrochemical cell made of Fe(s) and $Fe^{2+}$ (aq) reacting with Ag(s) and $Ag^{+}$ (aq) is __________ V. (Give your answer to three digits.)

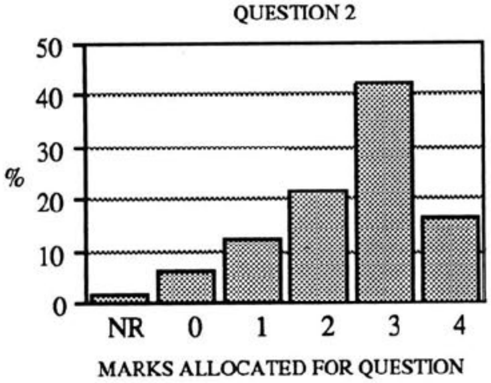
## WRITTEN RESPONSE

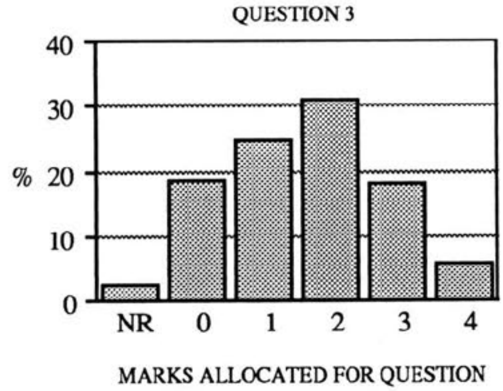
The level of achievement on the written-response section was lower than expected; a little over half the students (57.5%) achieved a mark of 7 or higher out of 14. This was due to the difficulty students had with question 1. Students' performance on questions 2 and 3 was as expected or higher.



**Question 1**: Slightly more than one-third of the students were unable to solve the question and, as a result, obtained a mark of 2 or less. This was due in part to the dual purpose of the question. It was designed both to measure students' ability to write a laboratory procedure and to test their understanding of combustion calorimetry. A student who did well on only one of these two components generally received three marks, but the student who completed both could attain the standard of excellence. Students who did not meet the acceptable standard were unable to address either component of the question. These students often missed the role of the candle completely and tried to measure its heat of fusion or heat of formation. Those who did recognize that a heat of combustion was required often omitted important steps in the procedure, such as selecting an end point to the experiment, taking the highest temperature reached by the water, or determining the mass of candle remaining. Many of these students arranged the steps in impossible order and used apparatus that was not listed in the question. Students who attained the acceptable standard but not the standard of excellence often had a good understanding of the concept but lacked organizational skills, or vice versa. They gave concise and lucid instructions about how to find the molar heat of fusion of paraffin, or they gave muddled or incomplete instructions about how to find the molar heat of combustion. Students who attained the standard of excellence completed both components of the question. The errors that prevented these students from earning full marks for this question were failure to record results and defining the final temperature taken as the highest temperature attained. These students presented all the required steps in a logical order and clearly expressed themselves so that no interpretation was required by the examiner. On this 6-mark question, the average mark was 2.93 or 49% of the available mark.

**Question 2** was answered better than expected. This question was selected to distinguish between students below the acceptable standard and those at the acceptable standard. As expected, students who did not attain the acceptable level on the examination scored 0 or 1 on this question. These students had difficulty reading the burettes or they used only one burette reading for the volume of $NaOH_{(aq)}$. Often these students interchanged the volumes of the solutions; for example, they used the volume of acid for the base. They also had difficulty recognizing that an air bubble would result in a spurious value. Students who attained the acceptable level on the examination were expected to score 2 or higher on this question; most attained a mark of either 2 or 3. They correctly read the values from the burettes, determined the concentration of the $NaOH_{(aq)}$, and recognized that the presence of air in the tip of the burette would result in a different calculated value. However, they did not explain how the air would affect the concentration of $NaOH_{(aq)}$ and, as a result, made contradictory statements. Students who attained the standard of excellence on the examination were expected to score 4, which they did. They communicated their understanding of the volume-concentration relationship. On this 4-mark question, the average mark was 2.48 or 62% of the available mark.



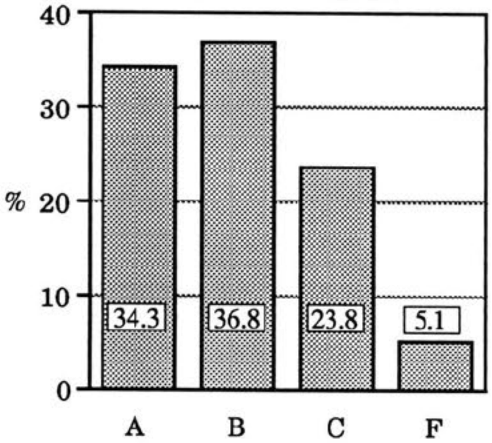


**Question 3** was answered as expected. This question was selected to distinguish between students at the acceptable standard and those at the standard of excellence. Students below the acceptable level were not expected to do well. These students were able to identify the purpose of the porous cup; however, they did not understand the role of the electrolyte in conductivity. As well, students not achieving the acceptable standard were able to calculate a voltage for the cell, but they did not select the correct oxidation and reduction half-reactions and therefore calculated a wrong voltage. Students who attained the acceptable standard should have scored at least a 1 or a 2. They were able to determine the correct voltage of the cell and to identify the purpose of the porous cup. Most of these students recognized that the presence of the copper half cells in the second cell did not affect the overall voltage, but they did not explain why. Their most common mistake was to describe the copper as being inert or as not being part of the reaction. Students who attained the standard of excellence needed to score a 3 or higher. They successfully explained why the two copper half cells did not increase the voltage of the cell, either by showing that the net ionic reaction for both cells was the same or by proving that the voltage of the second cell was the same as the first, even though the copper half cell voltages were included. Students not attaining full marks did not communicate clearly the significance of their net reactions or their calculations for the overall question. On this 4-mark question, the average mark was 1.62 or 41% of the available mark.

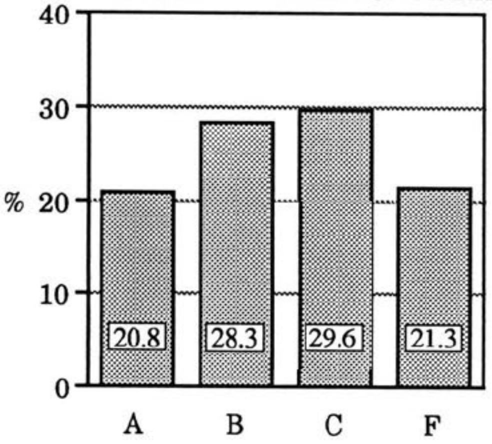
For further information, contact Don Loerke, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# Physics 30 Diploma Examination Results
# Examiners' Report, June 1991

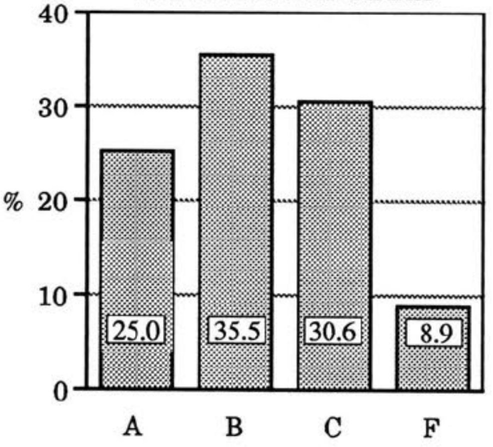
SCHOOL-AWARDED MARK



DIPLOMA EXAMINATION MARK



FINAL BLENDED MARK



The summary information in this report provides teachers, school administrators, students, and the general public with an overview of results from the June 1991 administration of the Physics 30 Diploma Examination. The information is most helpful when used in conjunction with the detailed school and jurisdiction reports that have been mailed to schools and school jurisdiction offices. An annual provincial report containing a detailed analysis of the combined January, June, and August results will be available in the fall of 1991.

## DESCRIPTION OF THE EXAMINATION

The Physics 30 Diploma Examination consists of two parts: a multiple-choice section of 49 questions worth 70% and a written-response section of four questions worth 30% of the total examination mark.

## ACHIEVEMENT OF STANDARDS

The information reported is based on the final blended marks achieved by 4 778 students who wrote the June 1991 examination.

- 91.1% of these students achieved the acceptable standard (a final blended mark of 50% or higher).
- 25.0% of these students achieved the standard of excellence (a final blended mark of 80% or higher).

Overall, student performance in Physics 30 was satisfactory. Students' problem-solving skills continued to improve and they had a good understanding of course content.

## PROVINCIAL AVERAGES

- The average school-awarded mark was 71.9%.
- The average diploma examination mark was 63.9%.
- The average final blended mark, representing an equal weighting of the diploma examination and school-awarded marks, was 68.3%.

# RESULTS and EXAMINERS' COMMENTS

### SUBTEST

When analysing any detailed examination results, please bear in mind that subtest results **cannot** be directly compared.

Results are in average raw scores.

Machine scored: 34.3 out of 49

Written response: 10.5 out of 21

- Course Content
  - Light: 10.9 out of 16
  - Electric and Magnetic Fields: 13.0 out of 19
  - Electromagnetic Radiation: 7.0 out of 10
  - Structure of Matter: 8.2 out of 14
  - Modern Physical Theories: 5.5 out of 11
- Process Skills: 19.7 out of 36
  - Multiple-choice questions 6, 9, 10, 11, 16, 17, 18, 20, 22, 23, 24, 30, 35, 37, 46; and written-response questions 1, 2, 3, and 4.
- Cognitive Levels
  - Knowledge: 12.5 out of 17
  - Comprehension and Application: 23.7 out of 35
  - Higher Mental Activities: 8.5 out of 18

### EXAMINATION BLUEPRINT

Each question on the examination is classified in two ways: according to the curricular content area being tested and according to the cognitive level demanded by the question. The examination blueprint illustrates the distribution of questions in June 1991 according to these classifications. Numbers with square brackets [ ] indicate written-response questions, and those without brackets indicate multiple-choice questions.

| Reporting Category | Questions by Cognitive Level | | | Examination Emphasis (%) |
|---|---|---|---|---|
| | Knowledge | Comprehension and Application | Higher Mental Activities | |
| Light | 1, 3, 5, 8 | 2, 4, 7, 9, 10<br>[1] | 6, 11 | 23 |
| Electric and Magnetic Fields | 14, 15, 21, 25 | 12, 13, 18, 19, 22, 23<br>[2] | 16, 17 20, 24 | 27 |
| Electromagnetic Radiation | 26, 27, 34 | 28, 29, 30, 31, 32, 33 | 35 | 14 |
| Structure of Matter | 36, 42, 43 | 37, 38, 39, 40, 41 | [3] | 20 |
| Modern Physical Theories | 44, 45, 48 | 46, 47, 49 | [4] | 16 |
| Examination Emphasis (%) | 24 | 50 | 26 | 100 |

The examination has a balance of question types and difficulties. It is designed so that students capable of achieving the acceptable standard would obtain a mark of 50% or higher and students capable of achieving the standard of excellence would obtain a mark of 80% or higher.

### MULTIPLE CHOICE

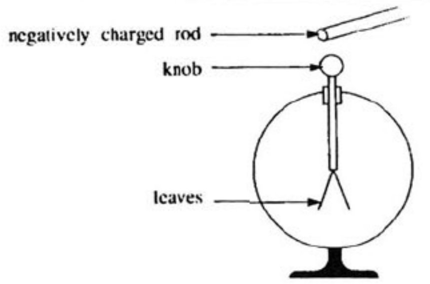
| QUESTION | KEY | DIFFICULTY* | QUESTION | KEY | DIFFICULTY | QUESTION | KEY | DIFFICULTY |
|---|---|---|---|---|---|---|---|---|
| 1 | B | 90.1 | 18 | D | 77.1 | 35 | A | 59.0 |
| 2 | C | 90.1 | 19 | C | 87.7 | 36 | D | 60.0 |
| 3 | A | 74.5 | 20 | A | 73.2 | 37 | B | 74.2 |
| 4 | C | 67.7 | 21 | A | 73.9 | 38 | C | 83.0 |
| 5 | B | 53.8 | 22 | B | 65.6 | 39 | B | 71.9 |
| 6 | A | 39.3 | 23 | C | 73.7 | 40 | B | 65.8 |
| 7 | C | 84.1 | 24 | A | 62.2 | 41 | A | 60.7 |
| 8 | A | 93.4 | 25 | D | 78.2 | 42 | D | 69.9 |
| 9 | D | 60.4 | 26 | A | 67.6 | 43 | C | 76.0 |
| 10 | D | 57.3 | 27 | D | 70.2 | 44 | A | 76.3 |
| 11 | A | 63.0 | 28 | D | 64.3 | 45 | D | 68.2 |
| 12 | A | 90.4 | 29 | A | 69.8 | 46 | B | 46.3 |
| 13 | C | 80.3 | 30 | B | 60.0 | 47 | C | 76.6 |
| 14 | B | 67.0 | 31 | D | 91.2 | 48 | B | 71.0 |
| 15 | A | 83.5 | 32 | A | 72.4 | 49 | B | 27.5 |
| 16 | C | 65.3 | 33 | C | 76.4 | | | |
| 17 | B | 43.3 | 34 | C | 72.3 | | | |

*Difficulty – percentage of students answering the question correctly

**MULTIPLE CHOICE** (continued)

A high level of competence in calculations was expected from all students. Students achieving the standard of excellence were expected to apply knowledge to unusual problems and to use scientific generalizations effectively. Students' performance on the multiple-choice section of the examination was generally satisfactory. Students found calculation questions the easiest. The multiple-choice average score was 69.7%. Detailed comments on questions 13 and 45 follow.

**Use the following information to answer question 13.**



A negatively charged rod is brought near the knob of a neutral electroscope.

**13.** When the negatively charged rod is close to the knob of the electroscope, the electroscope becomes charged

**A.** positively on both the knob and the leaves
**B.** negatively on both the knob and the leaves
* **C.** positively on the knob and negatively on the leaves
**D.** negatively on the knob and positively on the leaves

**Question 13** required students to understand the dynamics behind electrostatic induction in an electroscope. The key concepts tested were that charge carriers are negative and the repulsive electrostatic force causes the charge carriers to move to the leaves of the electroscope. Over 80% of the students answered this question correctly, including well over half of those students with examination scores of 50% or less. This indicates that students have an understanding of charge displacement and its causes.

**45.** The formula used to determine the kinetic energy of an object moving at a speed of $0.8c$ is

**A.** $E_k = mc^2$

**B.** $E_k = 1/2mv^2$

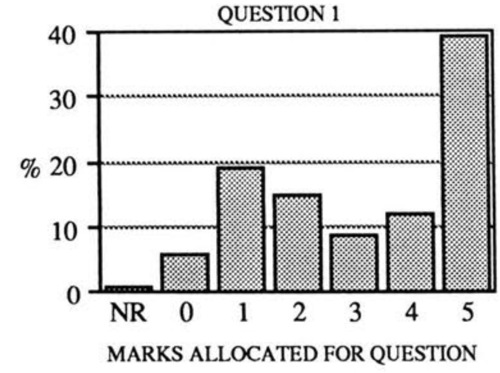
**C.** $E_k = 1/2m_0v^2$

* **D.** $E_k = (m - m_0)c^2$

**Question 45** tested the students' understanding of one of the kinetic energy definitions at relativistic speeds. Students needed to know that mass change is significant at relativistic speeds. Almost three-quarters of those students achieving the acceptable standard answered this question correctly. Less than half of the students who did not achieve the acceptable standard responded correctly, suggesting that many of these students have only a superficial understanding of relativisic effects.

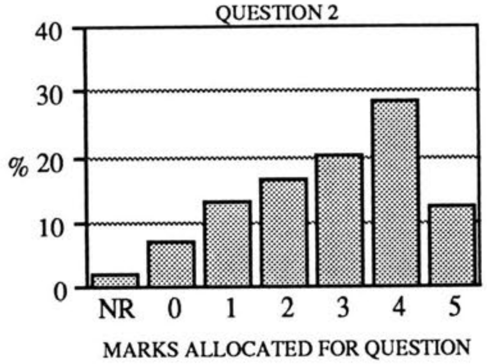
## WRITTEN RESPONSE

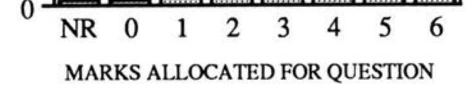
The four questions in the written-response section were created from four of the five strands for Physics 30. Students' problem-solving skills were tested most in question 1, parts a and b of question 2, part c of question 3, and question 4. Students achieving the acceptable standard should have achieved at minimum half marks on questions 1 and 3, 2 out of 5 marks on question 2, and 1 out of 5 marks on question 4. Students performing at the standard of excellence should have obtained almost full marks on questions 1 and 2, and 4 marks each on questions 3 and 4.



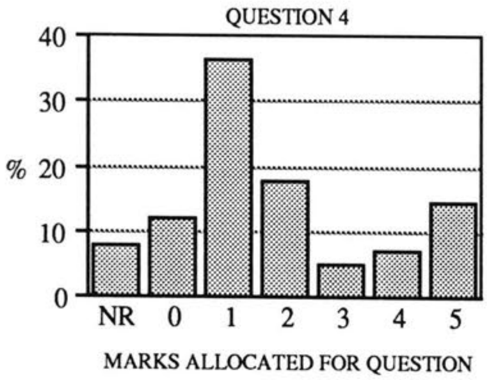
Students performed well on **question 1**. Over half of them received a mark of 4 or 5 out of a possible 5 marks. Students completed the diagram with a reasonable degree of accuracy, used correct trigonometry to find the required angles, and then were able to find an index of refraction. The main difficulty was associated with the identification of angles of incidence and refraction. A large number of students used one or both complements of the required angles. As a result, the indices obtained were often less than 1.00 (*n* for a vacuum) or greater than 2.42 (*n* for diamond). These students did not recognize these as unreasonable values for ***n***. On this 5-mark question, the average score was 3.17 or 63%.

Students achieving at or below the acceptable standard found **question 2** difficult. In part a, many students were not able to calculate the circumference of the circular path. Instead, they used the radius or the diameter of the proton's path to find its speed. Part b of this question was generally answered quite well. Students understood that the magnetic and centripetal forces had equal magnitudes and were able to solve for the magnetic field. In part c, students had difficulty both in determining the direction of the magnetic field and then in describing it. The incorrect left-hand rule was often used. Students were also not sure whether the external field was the magnetic field associated with the proton current or a magnetic field caused by magnets. The terminology used to describe the direction was ambiguous. For example, using the term *downward* did not necessarily mean the correct response of *into the page*. Some students used *downward* to mean *toward the bottom* of the page and supported this with an arrow in that direction. On this 5-mark question, the average score was 2.83 or 57%.





**Question 3** was attempted by 99.9% of the students and only 1.9% of all students received no marks. It appears that students in general feel comfortable with graphing and are able to handle most graphs involving data that are linear. However, they must be careful when labelling and scaling the axes. This question required the students to graph two sets of data for an unbalanced Millikan experiment and to find the slope of the graph. Students were then asked to find the charge on the accelerated particle by means of a suitable averaging technique. Many students do not consider the slope of a graph to be the most suitable average for the data. Of those students that used the slope, many had difficulty relating it to the charge on the oil droplet. Also, many students did not realize that this Millikan experiment was not balanced. Therefore, they did not include the acceleration of gravity in their calculations. On this 6-mark question, the average score was 2.59 or 43%.



**Question 4** was the most difficult question in the written-response section of the examination, especially for those achieving below the standard of excellence. Most students were able to calculate the kinetic energy gained by the alpha particle. A large proportion of them used $\Delta E = 1/2mv^2$ to calculate the speed of the proton. Many students did not recognize that relativistic effects needed to be considered when speeds greater than $c$ were obtained from the calculation or when alpha particles have energies in the range of gigaelectron volts ($10^9$ eV). These students may have been awarded only one or two marks. This contrasts with the results on question 45 in the multiple-choice section of the examination, where the same group of students was able to recognize that a speed of $0.8c$ requires the use of relativistic formulas. Students did not understand that their justification of formulas was to be based on concepts studied in physics rather than on the "fit" of a particular formula to a set of given data. On this 5-mark question, the average score was 1.87 or 37%.

For further information, contact Craig Emter, Yvonne Johnson, or Phill Campbell at the Student Evaluation Branch, 427-2948.

# DIPLOMA EXAMINATIONS PROGRAM
# ANNUAL REPORT QUESTIONNAIRE

The Student Evaluation Branch strives to produce documents that will be useful to the educational community. The purpose of the following questionnaire is to collect your opinions about the *Annual Report*. Your opinions will be considered when the content and format of the report are reviewed before the production of the next issue.

Please take a moment to respond to the following questions. Then detach this sheet and send it to:

Mr. Michael Robinson
Assistant Director, Analytic Services
Student Evaluation Branch
Alberta Education
11160 Jasper Avenue
Edmonton, Alberta T5K 0L2

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## USE OF THE REPORT

Please check the boxes that apply to you.

1. My present role is primarily that of

- teacher ☐
- school administrator ☐
- central office administrator ☐
- school board member ☐
- other (please specify) ____________________

2. I read the report, but I DID NOT use it to interpret the results attained by my students. ☐

3. I read the report, and I used it to interpret the results attained by the students in

- my classroon ☐
- my school ☐
- my jurisdiction ☐

Please respond to the following statement if you checked one of the three boxes in question 3.

4. I used the results to alter the educational program offered in

- my classroon ☐
- my school ☐
- my jurisdiction ☐

*Continued*

## CONTENT OF THE REPORT

1. Please judge the usefulness of the information included in the various sections of the report by checking the appropriate boxes below.

| | Very Useful | Adequate for Use | Of Some Use | Of No Use |
|---|---|---|---|---|
| Section 2: Summary of Results | ☐ | ☐ | ☐ | ☐ |
| Section 3: Results by Gender | ☐ | ☐ | ☐ | ☐ |
| Section 4: Results for Population Subgroups | ☐ | ☐ | ☐ | ☐ |
| Section 5: Special Study | ☐ | ☐ | ☐ | ☐ |
| Section 6: Achievement-Over-Time Studies | ☐ | ☐ | ☐ | ☐ |
| Section 7: Examiners' Annual Summary Statements | ☐ | ☐ | ☐ | ☐ |

2. If you wish, please comment further on the content of the report in the space below.

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## FORMAT OF THE REPORT

1. Please judge the usefulness of the report's format by checking the appropriate boxes below.

| | Very Useful | Adequate for Use | Of Some Use | Of No Use |
|---|---|---|---|---|
| Organization into Separate Sections | ☐ | ☐ | ☐ | ☐ |
| Double-Column Presentation of Text | ☐ | ☐ | ☐ | ☐ |
| Presentation of Figures | ☐ | ☐ | ☐ | ☐ |
| Presentation of Tables | ☐ | ☐ | ☐ | ☐ |
| Blending of Information in Text, Figures, and Tables | ☐ | ☐ | ☐ | ☐ |

2. If you wish, please comment further on the format of the report in the space below.

Back cover